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ENDORSEMENT.

At a joint meeting of the Chicago Medical Society and the Chicago Medical Examiners' Association, held December 13, 1899, Dr. Denslow Lewis introduced the following resolution which was adopted unanimously:

WHEREAS, The Chicago Medical Society and the Chicago Medical Examiners' Association are informed that a vacancy will soon exist in the State Board of Health, and

WHEREAS, The Chairman of the Legislative Committee of the State Medical Society of Illinois has reported that geographically this vacancy belongs to Cook County, and he has further stated that it is the duty of Chicago physicians to select some good man and to see to it that he is properly endorsed; therefore

Resolved, That, without prejudice to the interests of other candidates, the members of the Chicago Medical Society and the Chicago Medical Examiners' Association, endorse unqualifiedly the candidacy of Dr. Geo. W. Webster to be a member of the State Board of Health. They recognize in Dr. Webster a man of integrity, reputation and honor, a physician of ability and eminence in the profession, a gentleman in every way qualified to act for the best interests of the people of the State.

Resolved, That a copy of this resolution, properly signed and attested, be transmitted to his Excellency, the Governor of the State of Illinois.

Dr. Lewis said: I am induced to offer this resolution and to ask its unanimous adoption, not because I am an intimate friend of Dr. Webster, for I am not. I believe he is well qualified to be a member of the State Board of Health. I believe every word said about him in the resolution is true. He is a reputable representative of the profession of Chicago, and, if appointed, he will do good work.

But there is another consideration of this subject, which transcends the interests of any one man. The chairman of the Legislative Committee of our State Medical Society, Dr. Pettit of Ottawa, tells us that it is our duty to select some good man and see that he is properly endorsed. He tells us that unless we do this, it is childish to complain if a poor appointment is made. I believe he is right. I believe it is time for the profession to take a decided stand in reference to medical appointments and I know the recommendation of these two medical societies assembled in joint session will receive respectful consideration.

In seconding the resolution Dr. H. N. Moyer said: It has not been the custom of this society to endorse men for positions in the public service, but the circumstances in this case are exceptional. The position is purely honorary and one which is of great importance from a public health stand point, and in the interests of a higher medical education. Dr. Webster is one of the leading members of this society and eminently qualified both by education and training for the position.

Letters, each with enclosure, have been received from—

J. E. Allaben, Rockford.
Wm. A. Pusey, Chicago.
Leroy Jones, Hoopeston.
The Newberry Library, Chicago.
Wm. E. Morgan, Chicago.
L. Hektoen, Chicago.
Chas. W. Evans, Chicago.
Wm. H. Rumpf, Chicago.
John Ross, Pontiac.
H. A. Eidson, Willow Hill.
G. L. Williamson, Homer.
E. T. Goble, Earlville.
N. K. McCormick, Normal.
H. W. Hand, White Hall.
D. A. Drennan, Springfield.
W. T. Moffett, Williamsville.
Chas. H. Beard, Chicago.
J. Clarence Webster, Chicago.
R. M. C. Ball, Monmouth.
R. E. Gordon, El Paso.
J. C. Franken, Chandlerville.
E. Mammen, Bloomington.
L. Brannon, Joliet.
E. A. Kratz, Champaign.
T. H. Stetler, Paw Paw.
G. T. Meacham, Taylorville.
S. L. Weber, Chicago.
R. H. Main, Barry.
J. N. Dixon, Springfield.
L. Blake Baldwin, Chicago.
W. W. Douglas, Hillsboro.
A. B. Middleton, Pontiac.

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SOME REMARKS ON CHRONIC BRIGHT'S DISEASE.*

BY ARTHUR R. ELLIOTT, M. D., CHICAGO.

The term "Chronic Bright's Disease" in its full generic sense includes several more or less distinct pathologic states. When the term is applied as a specific appellation to denote a single diseased condition, it is chronic interstitial nephritis that is meant in preference to its congeners chronic parenchymatous nephritis, amyloid or cyanotic kidney, these latter states being in the main associated with antecedent or coincident morbid processes. In this manner the name "Chronic Bright's Disease" has been employed in the title of this paper to denote chronic interstitial nephritis or granular kidney, the latter a term much in vogue among English clinicians, although less frequently used in America. Some question may be raised against the use of the two as synonymous terms, the name "granular kidney" denoting a process purely cirrhotic in nature, while "interstitial nephritis" implies the occurrence of inflammatory changes. This distinction is of greater theoretic than practical interest, for the end product of the two is the same, the clinical history is almost identical and I believe it rare indeed, for a purely cirrhotic process to run its course without the occurrence of incidental inflammatory changes.

Chronic interstitial nephritis is a disease of frequent occurrence, a frequency by no means adequately recognized. Various statistics have been compiled from post-mortem records which go to show according to West an occurrence of from 11 to 18 per cent. This is largely in excess of its clinical recognition. Goodhart's statistics compiled from the records of Guy's hospital, yield 15 per cent, while the records of the Birmingham general hospital are represented by Saundby as revealing a frequency of 18 per cent. The observations published by Samuel West in the last Lettsomian lectures are still more striking and suggestive. Under his direction an investigation was conducted to show the cause of death in persons brought into St. Bartholomew's hospital dead or dying, a total of 79 cases being examined in all of which a post-mortem examination was made. The results of this inquiry revealed the remarkable fact that in 48 per cent chronic interstitial nephritis was present. In 16.8 per cent it was the only demonstrable cause of death, and in 21.6 per cent more it played its part either in producing death or in causing the lesion which led to death—that is, together 38.4 per cent. If greater weight of evidence were necessary to establish the frequency of this lesion it is furnished by the table compiled by Mahomed in an endeavor to determine the relative frequency of granular kidneys to healthy kidneys at different age periods. Three hundred and thirty-six cases were examined, 57 of which were over 50 years of age.

Ages	Granular Kidneys found in
10 to 20	2.3 %
30	3.0 %
40	12.0 %
50	38.5 %
60	43.0 %
Over 60	50.0 %

Could more striking proof be furnished of the frequency, and hence the importance of this affection? Its interest does not depend upon its frequency only, but its insidious course and elusive manifestations render it one of the most interesting clinical problems. It is a common cause of sudden death, and as shown by West is often found post-mortem when not suspected. It is many times overlooked in cur-

*Read at the 40th Annual Meeting, Cairo, May 18, 1899.

sory examination of patients and may as frequently be unexpectedly revealed by careful examination. Moreover, by virtue of its great frequency it is often associated with other diseases and it introduces a grave element into their prognosis. I shall make no attempt to consider this interesting condition in anything like a thorough or coordinate manner, but shall simply touch upon a few of its aspects which an increasing experience has impressed upon me. Granular kidney has been called a disease of middle life. It is true that it is most often recognized during that epoch, but it may have existed for years and have had its origin in early life. It is an essentially chronic process, indeed, one of the most chronic of all affections extending over a period of years often 10, 15 or even 20 in number. In the vast majority of cases it is not during its early stages that its presence is discovered, but only after the morbid changes have so far advanced as to interfere decidedly with the functional capacity of the kidneys. This is mainly due to the fact that until that point is reached no symptoms referable to the kidneys as the seat of the trouble are apparent, and also partly, I am satisfied, to an insufficient appreciation of the elusive early symptoms of the disease, for at no time in its progress will careful examination fail to elicit evidence of its existence. A beneficent nature has endowed the human organism in essential places with organic provision sufficient to meet any reasonable degree of strain above the physiologic level that may be imposed upon us by the exigencies of life. Accordingly, we are provided with lung tissue largely in excess of the capacity for æration necessary in ordinary physiologic living, so that we are enabled, without difficulty, to meet emergencies, and so it is that extensive organic impairment of lung tissue is compatible with a fair degree of health and usefulness. We see this admirable arrangement duplicated in the kidneys—organs which are even more abused than the lungs, even more frequently called upon to protect the system from the results of our excesses. It is certain that there is a far greater supply of renal gland tissue than is ever required in physiologic living, and which can be dispensed with without discommoding the individual so long as ordinary conditions prevail. The degenerative changes which are the special feature of the glanular kidney advance very slowly and may exist months, and even years, before the renal tissue has been so far encroached upon as to render the organs incapable of the proper performance of the work demanded by normal conditions. It is then only that a distinct and unequivocal symptom complex becomes apparent. Ralfe indeed states that it is only when two-thirds of the kidney substance has been destroyed that toxemic symptoms are manifest. When this point is reached the symptoms of a chronic advancing uremia, combined with distinct urinary abnormities, render the condition very easy of recognition, but, unfortunately, by this time the period for usefulness has to a large extent gone by, and all that remains is to compromise with existing conditions, conserve the badly damaged organs, and prolong an existence, often miserable enough. Such a point is not usually reached until years after the degenerative lesion was first originated. If by good fortune the disease is discovered in its incipiency, before the organs are greatly hampered, a very promising field is open to our endeavor, and by judicious management further advance may be arrested or so far retarded as to enable the patient to live in comfort and usefulness many years.

Our attitude towards the disease must not be one that regards it as a purely renal lesion. Primarily it may be so, but it soon becomes much more than that. The changes accompanying its development are widespread, seriously involving the circulating organs and disturbing many of the systemic functions.

It is not too much to say that the majority of cases of chronic interstitial nephritis are never discovered and that apoplexy and heart disease frequently usurp its rightful place upon mortality records. This is not because the diagnosis

is difficult, but because there is little in the symptoms to draw attention to the kidneys.

The initial stages of the disease present the greatest difficulties to a precise diagnosis, and it is this phase I would discuss. The early symptoms are indefinite and not such as to excite the alarm of the patient so that the physician is seldom consulted until the disease is well advanced. If the patient seek early advice it is usually for the relief of some symptom not referable to the kidneys. Opportunities will always exist and frequently arise that will enable us if our attention be awake to the significance of certain alterations to discover the disease. Thus granular kidney is the special condition which is likely to be accidentally revealed by examination of the urine for life insurance. Likewise the systemic disturbance of acute febrile disorders may intensify latent symptoms so as to lead to its discovery. Many an obscure nervous, circulatory, or digestive condition in the middle-aged will become easy of interpretation in the presence of a thickened artery, heightened tension and polyuria. The frequency of this degeneration during the latter half of life certainly warrants an invariable analysis of the urine whenever obtainable, although there may seem no special indication for it.

The symptoms of chronic interstitial nephritis fall into two groups; those referable to the kidneys, and those arising from alterations in the circulatory apparatus. The renal symptoms are, as a rule, much more tardy and latent than the cardio-vascular. When present during the earlier stages they consist of a moderate polyuria principally nocturnal, an inconstant albuminuria and reduction of urinary solids. The only urinary symptom at all constant during the early stages is polyuria. This is not excessive or troublesome, and is usually more noticeable at night time, compelling the patient to rise once or more to relieve the bladder. This symptom is of easy and gradual onset and unless extreme, is accepted without concern by the patient, who usually does not regard it as peculiar, but on the contrary, may look upon it as beneficial to pass so much urine, and it may require close questioning to determine its duration. When no vesical or prostatic cause exist to account for the symptom its presence as an acquired habit in people of middle age is extremely suggestive of commencing granular nephritis. Aside from this manifestation, the renal symptoms are the latest to develope, and we must perforce depend upon physical signs for our diagnosis. These are referred to the circulatory system, and are the evidences of cardiac enlargement, thickened arteries and high arterial tension. Cardiac hypertrophy is a pretty constant accompaniment of granular kidney, Goodhart's post-mortem average being 89.6 per cent. Ewald's 84 per cent, and Kanthack and Holmes' 90 per cent. A displaced and forcible apex beat together with alterations in the cardiac sounds usually furnish an easy clue to the ventricular hypertrophy although it is by no means uncommon for it to exist in moderate degree and yet be impossible of demonstration. The vascular condition is more easily demonstrable as a rule, and perhaps more constant. The arteries are felt to be hard and not easily obliterated by pressure, full between the beats and feeling like fibrous cords underneath the examining finger. At the same time the arterial tension is persistently raised as can be readily perceived by the finger, or demonstrated by means of the sphygmograph. This increased arterial tension is one of the most suggestive evidence of interstitial nephritis, and when combined with thickened arteries is most frequently the earliest manifestation of the disease. Mahomed's view since supported by Goodhart, and recently agreed to by West, was that these were the early initial stages of granular kidney. This combination of conditions occasionally gives rise to a symptom which may be the first positive declaration of the disease, and its occurrence is full of suggestiveness. I refer to hemorrhage. This most often takes the form of an obstinate epistaxis arising spontaneously or following exertion, such as cough-

ing, lifting heavy weights, or straining at stool. Less frequently apoplexy, subconjunctival hemorrhage, hematemesis, hemoptysis, and hematuria occur. Within my recent experience the discovery of the renal lesion has been due in three instances to epistaxis, in one to hemoptysis, and in another extremely interesting case, to severe spontaneous renal hematuria. Although hemorrhage may constitute the symptom that first leads to diagnosis, in the majority of such cases the disease is well advanced. Hemorrhage occurs most frequently in patients beyond middle life in whom some degree of arterio-sclerosis is present, but even in the young, granular kidneys must not be disregarded as a cause of repeated epistaxis. During the initial stage of the disease the changes in the urine, although characteristic, are in the majority of instances extremely difficult of satisfactory demonstration. Albuminuria is slight, often amounting to but a faint trace, with the most delicate tests, or it may be absent altogether. When present it may vary much in amount at different times, or may disappear entirely for considerable periods. It may be so elusive as to require the analysis of several specimens to discover it and in rare instances it may be absent during the entire progress of the case. It frequently assumes a cyclical character, appearing in the urine of activity or after eating and entirely disappearing in the urine of quiesence and recumbency. It is clearly evident from its inconstant character that too much significance is not to be attached to its absence. We must not, however, allow its occasional absence to detract too greatly from the value of albuminuria in the diagnosis of interstitial nephritis. It will always be a symptom of much import, especially when found in the urine of patients of middle age, even if its amount be slight and its occurrence irregular. The specific gravity is in most instances persistently reduced several points below the normal, and curiously enough conditions such as vomiting, diarrhœa, and profuse perspiration which ordinarily cause concentration of the urine, do not have the effect of raising the density to the normal standard. Volumetric analysis of the collected twenty-four hours urine will reveal a diminution of urinary solids, especially of urea. The microscopic findings are singularly elusive and it may require the most painstaking search of the urine sediment to reveal anything abnormal. Hyaline casts can usually be detected if the centrifuge be used and proper illumination is employed. They are sparse in number, exceedingly light in texture, and extremely difficult of detection except in highly centrifugalized sediments. With a urine so nearly negative in comparison with the usual standard of pathologic variation, many instances of the disease must inevitably escape detection unless we depend upon other means than the urine for our diagnosis, or combine with our urinary findings the information elicited by physical examination. We must dismiss from our minds the belief that the presence of albumin and casts in the urine is absolutely essential to a diagnosis of nephritis, and cease from attaching any negative inference to the results of the analysis of a single specimen. We must impress firmly upon our minds the value of a thickened artery, and be alive to the significance of a heightened tension. In general, but two things can result in thickened vessels, and increased tension and they are atheroma and interstitial nephritis. If the former element can be eliminated we should search well to confirm the latter; indeed, we should investigate all cases, for atheroma and granular kidney frequently co-exist. With our consciousness awake to the special significance of such manifestations, even if present in but moderate degree, and with our minds disabused of belief in the overwhelming importance of urinary findings, I am sure much greater certainty of conclusion will result, and many more cases of granular kidney will be revealed, and at a period while still amenable to treatment.

I have been much impressed by the influence of the hereditary element upon the prognosis of this affection. The hereditary character of interstitial nephritis has

attracted the attention of many observers, and numerous records have been made of cases occurring in different members of families. The annals of everyone's practice will sooner or later furnish instances of this hereditary association. Curiously enough, the risk to the offspring of those who have died of Bright's disease is practically ignored by insurance companies. This hereditary predisposition as an etiologic factor is regarded in a very conservative manner by writers upon the subject. I believe it to be a much more important element than is generally credited, and a far more frequent one. It is true that it is impossible save in a few instances to elicit a direct history of Bright's disease, but it must be borne in mind that many, perhaps the majority of cases, of granular kidney are never identified as such and that apoplexy, heart disease, gout, dropsy, may be the various aliases under which the disease in former generations has masqueraded. I believe it a significant fact to elicit a history of any one of these as a family complaint. It may seem but a matter of clinical interest to thus trace a relationship between a present nephritis and a former apoplexy, but it has far greater importance than the satisfaction of clinical curiosity. My experience leaves me in no doubt that an inherited vice of constitution plays a most insidious and disastrous part in the progress and termination of interstitial nephritis. Such cases bear no mark of identification to distinguish them from others save in their more rapid downward course and greater resistance to treatment. Not only will the clinical manifestations in cases marked by an inherited taint be found more unyielding, but our utmost efforts may fail of the happy results obtained in the non-hereditary type, and comparatively little influence be exerted in staying the progress of the degenerative changes. I do not mean to imply that the course of such cases is a rapid one toward a fatal termination, but rather that they are much less readily influenced in a favorable way by dietetic and other measures, and that their course is more unfortunately eventful and more uniformly progressive.

The obstinacy to treatment that these cases present is all the more remarkable because we are dealing with a disease which in its early stages responds in a flattering manner to treatment. It is surprising that so little note has been taken of this influence in prognosis, for I can find no reference to it in the literature at my command. Our forecast must be a conservative one when it is a feature of the case.

MOVABLE KIDNEY.*

BY A. E. HALSTEAD, M. D., CHICAGO.

Prof. Anatomy and Associate Prof. of Principles and Practice of Surgery and Clinical Surgery, Northwestern University Medical School; Prof. Rectal Surgery, Chicago Policlinic; Attending Surgeon Cook Co. Hospital.

Movable kidney, although one of the commonest pathological conditions encountered in the practice of medicine, is still by many wrongly interpreted. By some regarded as a mere anatomical curiosity having no practical significance; by others of great importance sufficient even in uncomplicated cases to cause disturbances of the chief functions of the organism thereby endangering the life of the individual. The latter view was held by Keppler, who regarded every case as demanding surgical treatment and advocated the removal of the offending organ as soon as it "caused any disturbance of the system." Following this advice many healthy kidneys were removed and a number of lives sacrificed. Lindner, in 1888, was able to collect 36 Nephrectomies for movable kidney with 9 deaths, giving a mortality of 25 per cent. Happily, surgeons today do not endorse the radical views held by Keppler, and no one would advise the removal of a movable kidney in the absence of other positive indications. Unfortunately, the opposite opinion, that of regarding movable kidney as possessing no serious clinical features though less dangerous, is held by too many today. We must admit

*Read at the 49th Annual Meeting, Cairo, May 18, 1899.

that this condition in itself seldom terminates fatally. On the other hand in nearly every case it produces symptoms which render the life of the individual one of constant suffering and in not a few acts as the determining cause of other and more serious maladies.

In order to understand the pathogenesis of movable kidney and to properly appreciate the factor necessary for its retention after it has been replaced in its normal position a brief description of the topographical anatomy of the kidney seems to me essential.

The kidneys lie behind the peritoneum on the upper part of the posterior abdominal wall, close to the transverse processes of the vertebra and mostly inclosed within the bony cavity of the thorax. They extend on each side from the lower border of the 11th dorsal to the lower border of the second lumbar vertebra. These upper and lower limits are not constant, but are those found in a large percentage of the cases examined. Variations in the upper and lower limits of the kidney are common but anything greater than the height of a vertebra is to be regarded as pathologic. Cunningham describes the kidney as being nearly constantly, under normal conditions, in the epigastric zone above the level of the subcostal plane, seldom reaching below the level of the upper border of the third lumbar vertebra. The right at times projecting one-fourth of an inch lower than the left with the lower pole about 5 cm. above the iliac crest. Pansch found that transverse sections of cadavers through the body of the third lumbar vertebra, and two finger breadths above the iliac crest only exceptionally exposed the lower poles of both kidneys. He placed the average upper limit as on a level with the middle of the spinous process of the 11th dorsal. Von Helm, in 104 cadavers (70 male, 34 females), found that the upper and lower limits of the kidney were subject to considerable variation being as a rule lower in women than in men. He considered the upper limit as being in the male the 11th and the female the 12th costo-vertebral articulation. The lower limits he found quite inconstant at times, being as low as the crest of the ilium. These, however, must be regarded as pathological.

Most anatomists describe the right kidney as being situated lower than the left. Von Helm found this to be the case in two-thirds of the subjects examined; Pansch in one-third. Quain's Anatomy places the right as one and one-half cm. lower than the left. Others hold that both lower poles are on the same level and any variation is to be regarded as abnormal. Among these are His, Sappey, Luschka and Rudinger. Under normal conditions the difference in the lower limits of the two kidneys is very slight if any.

From a practical standpoint the relation of the 12th rib to the kidney is of importance. This rib presents great variations in the extent of its development, and in its relations to neighboring structures. It may be entirely absent on one or both sides or it may be so short and attenuated as to render it impalpable. Holl found anomalies in development to be present in every third or fourth case. The right being more frequently imperfectly developed than the left.

Recamier (cited by Wolkow) did not find it absent in any of the 50 cadavers he examined with this end in view. In 12, however, it was so short as to be indistinguishable excepting by its mobility from a transverse process. In 14 cases its length varied from four to one and one-half cm. Under normal conditions the 12th rib is parallel with the 11th, and crosses the posterior surface of the kidney at an angle of 45 degrees, dividing it into a superior or thoracic, and an inferior or abdominal segment. The relative parts of the kidney represented by these segments are as 3.5:5.

In cases where there is a failure of development of the 12th rib its course is not parallel with the 11th, and the angle formed by it and the kidney is not constant. Variations in the relative size of

the thoracic and abdominal portions of the kidney even to entire absence of the thoracic which normally represents the greater portion may be encountered.

The anterior surface of the kidney, in the fœtus lobed in the adult smooth, is directed forwards and outwards, and is covered by peritoneum throughout its entire length. On the right side 2/3 or 3/4 is covered by the liver and separated from it by the peritoneum. It is also beneath the hepatic flexure of the colon being in close relation to the same when a colic mesentery is absent. In this case the peritoneum passes from right to left from the anterior surface of the kidney immediately over the colon and descending duodenum binding these three organs closely together. According to Jonnesco the Pars Descendens Duodeni is normally in intimate relation with the anterior surface of the right kidney. The extent of surface of kidney in contact with the colon and duodenum is influenced according to Braune by the degree of distention of these intestines.

The left kidney is in relation anteriorly in its upper third with the spleen and its lower two-thirds with the splenic flexure of the colon. Its inner border abuts the cardiac end of the stomach. Part of it lies beneath the pancreas, which is grooved for the renal vessels. The ascending duodenum is in relation to a variable extent with its lower third. In the U-type of duodenum the surface in relation with the left kidney is greater than when the V-type exists (Jonnesco). The posterior surface, inclined inwards is flat and lies against the crura of the diaphragm which separates it from the last rib, the last intercostal space and the lower part of the pleural cavity. Intervening between it and the quadratus lumborum muscle against which it rests is the anterior layer of the lumbar fascia. The upper third, and at times, the upper half of each kidney lies therefore above the lower limit of the pleural cavity. The relation of the kidney to this cavity explains the displacement of these organs which so commonly is noted in exudates into the pleural cavity.

The external surface, also directed posteriorly, is likewise separated above by the diaphragm from the last rib, and the last intercostal space and below from the quadratus lumborum by the aponeurosis of the transversalis muscle.

The internal border, concave, and directed forwards rests upon the psoas magnus. This muscle which inclines from within, outwards and downwards, forms the lower and inner boundary of a fossa, the upper and inner boundary of which is the crura of the diaphragm; the quadratus lumborum with the anterior layer of the lumbar fascia in front of it forms its outer wall. These fossæ, one on each side of the vertebral column (Paravertebralen Nischen), are considered by Wolkow and Delitzin to be the chief support (Sustentaculum Renis) of the kidneys.

Of the structures that have a more or less important influence upon maintaining the kidney in its normal position may be mentioned the peritoneum, together with the so-called peritoneal ligaments, the subperitoneal fascia, the adipose capsule and the fascia or capsula propria. Indirectly the renal vessels and the neighboring organs particularly the pancreas and the adrenals aid in supporting these organs. Other factors such as the general intra abdominal pressure and the suction action of the diaphragm undoubtedly to a certain extent assist but can not be classed with the fixation apparatus proper of the kidneys.

The parietal peritoneum extending from the posterior abdominal wall over the suprarenal body, the upper half or two-thirds of the right kidney, the hepatic flexure of the colon, the descending duodenum and the vena cava, passes upwards to the inferior surface of the liver. The peritoneal folds extending between the liver and these organs form the so-called peritoneal ligaments which are regarded by many of supreme importance in the fixation of the kidneys. The ligaments

chiefly concerned in the support of the kidneys are first, the lig. hepatorenale, consisting of a strong peritoneal fold connecting the outer margin of the right lobe of the liver with the upper end of the right kidney. Second, more internally a fold passing from the under surface of the right lobe to the superior curve of the duodenum, and from there continued to the anterior surface of the right kidney. Third, a band of peritoneum passes from the neck of the gall bladder to the superior curve of the duodenum (lig. cysticoduodenale), and from there is continued with the lig. hepato-duodenale to the anterior surface of the kidney. These folds of peritoneum are not always distinct but are frequently blended together. This led Jonnesco to designate them collectively the lig. hepato-reno-duodeno-colicum.

The lig. hepato-duodenale (the right free edge of the gastrio-hepatic omentum) which contains the bile ducts, is a part of this broad fold of peritoneum described by Jonnesco. Traction on this ligament and consequent kinking of the choledochus is considered by Weisker as the rational explanation of the jaundice that is occasionally associated with movable right kidney.

On the left side the splenic flexure of the colon covers the superior pole of the kidney and is held firmly in place by the phreno-colic ligament which is given off from the diaphragm between the 10th and 11th ribs.

A strong connective tissue lamella formed by the fusion of three layers of peritoneum binds the anterior surface of the left kidney firmly to the parietal peritoneum.

The value of these peritoneal ligaments as supports to the kidneys is questioned by many. The arguments advanced by those who do not consider them of any practical value in holding the kidneys in position are first, that the right kidney which gives attachment to these ligaments is more frequently displaced than the left, which lacks their support. Second, they are not directly attached to the kidney, but separated from it by connective tissue containing more or less fat and therefore can not materially aid in the fixation of the kidneys. The experiments of Wolkow and Delitzin show that even when these ligaments are intact, that on opening the abdomen with the cadaver in the vertical position the kidneys will glide down behind the peritoneum for a considerable distance.

We may therefore consider that these peritoneal ligaments, although they may help in supporting the kidneys, are not the chief factors in preventing them from leaving their normal locality.

The fatty capsule is regarded by some as being the chief support of the kidneys. Landau considers it as the *immediate means* of support and concurs with Bartholin in his statement that it is deserving of the title of ligamentum renis. This capsule first described by Haller under the name of capsula adiposa is derived from the lamina fibrosa of the fascia propria peritonei, which on reaching the kidney divides into two layers one passing behind (fascia retrorenalis of Gerota), the other with the peritoneum transversely over its anterior surface. At the upper end of the kidney these two layers coalesce and separate it from the suprarenal body. Below they unite near the brim of the pelvis, where they gradually become indistinct and are lost in the pelvic subperitoneal connective tissue.

The kidney which lies loosely in the capsula adiposa is firmly surrounded by its tunica propria. The fatty capsule is joined to the tunica propria by bands of connective tissue. In the region of the lower pole of the kidney the connective tissue fibres are especially strong, binding the tunica propria to the fatty capsule and the two layers of the fatty capsule together, forming a pocket in which the kidney rests. The anterior layer of this capsule is rather firmly connected with the peritoneum by connective tissue fibres, its posterior layer is loosely adherent to the fascia covering

the muscles in the posterior abdominal wall. According to English the posterior layer passing upwards to the diaphragm is especially concerned in supporting the kidneys, and was named by him the ligamentum suspensorium renis. The practical value of this portion of the capsule connected with the diaphragm is shown by the experiments of Wolkow. In the cadaver in the vertical position with the abdomen opened the capsule allowed a certain amount of sinking down of the kidneys; further forcible traction on the capsule caused distinct downward descent of the diaphragm. Again when the posterior attachments of the capsula were severed, the body being in the vertical position, the kidneys descended and became flexed on themselves and appeared almost spherical. Wolkow concludes that even though the capsules may not be sufficient to keep the kidneys in place it undoubtedly is an important factor in preserving their normal shape when the body is erect.

The other direct means of fixation, viz.: the adrenals and renal vessels are of relatively slight importance. The adrenals are firmly attached to the posterior abdominal wall and do not follow the kidneys when they become movable. The union between the kidneys and adrenals is slight, and not at all sufficient to be of real value in anchoring the kidneys. The renal vessels passing horizontally from the kidneys toward the median line can offer in themselves but slight resistance to the downward and inward excursions of these organs.

From the foregoing consideration of the means of fixation of the kidneys it will be seen that any one alone of these factors would be inadequate to support them. Combined with the general intraabdominal pressure and the aspiratory action of the diaphragm, together with the support furnished by a relatively intact abdominal wall and with properly formed paravertebral fossæ, they are sufficient to retain the kidneys in their normal position and prevent any but very slight movements of these organs.

Great difference of opinion exists as to the question of whether or not normal kidneys are influenced by the movements of the diaphragm, that is to say if they possess a normal respiratory movement. Landau holds that "during life the kidneys remain almost immovably fixed. Even deep inspiration does not depress them." Kuttner is equally as positive in his statement which he based upon the examination of a large number of cases. He classed all having respiratory mobility as pathological. On the other hand Curschmann maintained that, in all cases, under normal conditions, demonstrable changes in the position of the kidneys result from respiratory movements of the diaphragm. He considers all kidneys as movable, the pathological degree of mobility he designates as ren hypermobilis. Israel believes that in every case where no adhesions exist the kidneys are influenced by respiratory movements of the diaphragm, but not to the same extent as the liver and spleen. Further, the left, because of its more intimate relation to the diaphragm, has a greater degree of mobility than the right.

The experiments made by Wolkow and Delitzin on the cadaver demonstrate conclusively that the kidneys are both influenced by the movements of the diaphragm, and also that at the height of inspiration the left is more depressed than the right. They also showed that in no case under normal conditions could the kidneys be forced sufficiently low to permit of palpation.

The etiology and pathogenesis of movable kidney is still largely a matter of speculation. This is due to the scarcity of post mortem records and for the reason that when post mortem examinations have been made, even when pronounced symptoms were present during life, very little evidence was found to indicate the manner of development.

The frequency is also a subject of considerable difference of opinion. Rollet, on examination of the records of Oppolzer's clinic, found that one case of movable kid-

ney was encountered in every 250 patients examined. Hertzk was able to find it in only 1.1 per cent of 6,000 cases examined. Glenard, in 950 patients treated for gastro-intestinal disorders, found it in 145 or 15 per cent. In 500 gynecological cases examined by Edebohls, 90 had movable kidney. From these figures it will be seen that we may safely say that one out of every 5 or 6 women have movable kidney of such a degree that it can be recognized by palpation. Again, taking the records of all of the most reliable observers we find that 80 per cent are found in women and 20 per cent in men.

One of the most generally accepted theories concerning the origin of movable kidney is that of Glenard, who considers this condition only a part of enteroptosis, or general displacement of the abdominal viscera. He maintains that all of the symptoms ascribed to movable kidney may be present before or in the absence of any recognizable dislocation of these organs. ("La pretendu maladie du rein mobile peut exister sans rein mobile.") According to Glenard these symptoms are occasioned by a general relaxation of all of the supports of the abdominal organs and not alone to mobility of the kidneys, which may or may not participate in this general descent. Unquestionably, as a consequence of a loss of tonicity of the abdominal walls associated with relaxation of the structures which support the abdominal organs, there may be a downward displacement of the abdominal viscera, *en masse*, which in a negative way acts as an etiologic factor producing movable kidney. The displacement of the kidneys in such cases must not however be regarded as the result of traction made upon them by the sinking down of the abdominal organs, but as a result of the loss of support furnished to the kidneys by the neighboring organs when in their normal position and from a disturbance of the general intraabdominal pressure that follows. The theory of enteroptosis can not explain unilateral dislocation of the kidney. It is applicable to a certain number of cases where both kidneys are involved and where in addition there is a relaxation of the peritoneal ligaments, dilatation of the stomach and weakening of the abdominal walls.

Prolapse of the female organs of generation is regarded by Landau as a frequent cause of movable kidney. The agents which act as predisposing or direct causes of this prolapse, such as frequent pregnancies, heavy lifting and tumors of the abdomen likewise exert an influence in the production of movable kidney, but can not be regarded as the immediate cause. It is possible that in some cases of extreme prolapse of the uterus traction through the ureters may be made upon the kidneys as Landau says and produce to a slight extent displacement of these organs.

Menstruation has been considered among the influences contributing to movable kidney by Lancereux, Fourrier and others. These writers assume that at each menstrual period there occurs, as a consequence of the connection existing between the ovarian and renal plexuses, a congestion of the kidney. The increased weight of the organ resulting from this congestion is sufficient to cause displacement of the kidneys. Clinical experience has demonstrated that the symptoms of movable kidney are aggravated by the menstrual period showing that a certain relation exists between the kidneys and the female generative organs, but any causal relation between menstruation and floating kidney can not be easily demonstrated. If such a relation existed floating kidney would be more common than it is.

Absorption of the perirenal fat is held by many to be the most frequent direct cause of movable kidney. This can only be of importance as a causative factor when the fat has been present in great quantity, and has been rapidly absorbed. It can not explain the origin of this condition in children under the age of 12 years in whom there is no perirenal fat found. Again, it would be difficult to explain why the fat from around the right kidney should be more often absorbed than that around the left. This of necessity would occur as we

find that in from 80 to 90 per cent of the cases the right kidney alone is movable. Trauma has frequently been cited as a cause of movable kidney. Kuster believes that it is the most important factor in the etiology of this disorder. Henoch reports a case of an officer who was thrown from his horse striking on his feet, dislocating both kidneys. Other cases are recorded which appear authentic. We must therefore admit that in rare cases trauma resulting from blows or falls, or as a result of muscular action from lifting or straining, the kidneys may be forced from their normal place.

In this brief review of what are considered the chief etiologic factors in the development of movable kidney we see that none can be regarded as the immediate cause, but all as only in a way contributory or predisposing agents.

In considering the fixation apparatus of the kidney we found the so-called supports, viz., peritoneal ligaments, abdominal wall, abdominal viscera, renal vessels and the general intraabdominal pressure all assisted in holding the kidneys in place, but were not the chief means retaining these organs in their normal place. After a careful consideration of what has been regarded as the supporting apparatus we must agree with Wolkow and Delitzin that the most important single factor in the retention of the kidneys is the shape and depth of the paravertebral fossæ in which the kidneys normally rest. If we accept this as true then we should look to a malformation, either congenital or acquired, of the fossæ as the most rational explanation of movable kidney. This view of the importance of the paravertebral fossæ was first advanced by Haller (quoted by Landau), who compared them to a nest. To Wolkow and Delitzin, however, whose anatomical researches have just been published, belong the credit of amplyfying this theory, and of placing it on a scientific basis. After carefully studying the configuration of these fossæ both in cadaver in which the kidneys were normally placed and also in those in which dislocation of the organs was present, by making plaster models of them, they arrived at the following conclusions, which I wish to quote: "The paravertebral fossæ show a great variety of forms, these varieties show a certain regularity. 1. The upper part of the fossæ corresponding to the arches of the diaphragm show a most material difference between the left and right sides. On the right side the arch of the diaphragm is flatter and reaches the maximum elevation more gradually than on the left. 2. In male subjects the fossæ are deeper and narrower toward the lower end. Their form is more nearly pear shaped. The impressions of the muscles (quadratus lumborum and psoas), and ribs are more distinct (on the model). These conditions remained unchanged when the body was placed in a vertical position. 3. In the female subject in whom there was no palpable mobility of kidney in the horizontal position the fossæ were found well contoured, distinctly narrowing toward the lower end. On the right side the boundaries were less distinct as were the impressions of the muscles on the plaster casts. On casts made with the cadaver in the vertical position the difference between the right and left sides was more apparent. Here the fossæ appeared broad toward the lower end, shallow and having less clearly outlined borders. In the horizontal position the contours of the right fossæ were still rounded. 4. In cases of unilateral mobility of the kidney the asymmetry of the fossa corresponding to the movable kidney appeared even in the horizontal, but especially in the vertical to have a cylindrical form, shallower and open below. The impressions of the muscles and ribs on the casts could scarcely be distinguished. 5. In cases of bilateral movable kidney these abnormalities reach their maximum. Here, even in the horizontal position these fossæ, cylindrical, open below and shallow; the right deformed to such an extent that insufficiency in fixation of the kidney is evident even on superficial examination. In one case there was present a right sided pleuritic exudate which completely changed the fossa. Our obser-

vations therefore show that it is a fact that there is a variety in the form of the posterior abdominal wall in different individuals, and the possibility of a change in the same individual."

The question if the external configuration of the abdominal wall would not show some peculiarity in persons having movable kidney was then investigated. This was demonstrated to be a fact both by clinical study and by experimental investigation on the cadaver. This fact was first observed by Chartes who saw in a case of right sided dislocation of the kidney a well marked concavity in the lumbar region, external to the erector spinæ.

Wolkow and Delitzin's studies show that particularly in lean subjects a marked variation in form of the lower part of the chest and abdomen can exist. In the male the waist is pyriform in the lumbar region, having a marked inclination forward. The female is more or less cylindrical and particularly noticeable in those with movable kidney.

From this it will appear that the principal factor in the causation of movable kidney and also the explanation of its frequency in the female sex, is to be found in the variations from the normal configuration of the paravertebral fossæ. The frequency of movable kidney in the right side is also explained by the shallowness of the right fossa as compared to the left. The commonly accepted theories regarding the cause of frequency of displacement of the right kidney such as greater weight and lower position of right kidney, the influence of the weight of the liver and the relation between the right kidney and the right ovarian plexus can have as we have seen little influence in forcing the kidney from its normal position.

The *symptoms* attributable to movable kidney vary greatly in their clinical importance in different individuals. In a few no serious effect upon the health is noted even though the kidneys possess a great range of mobility. In other cases even in displacements of the first degree pain referred to these organs and general disturbance of the functions of the abdominal organs may be very great.

The chief symptoms are in many cases referred to the nervous system. These vary from slight degrees of nervousness to a marked neurasthenic state. Pain referable to the back, particularly to the lumbar portion of the spinal column and radiating along the branches of the lumbar and sacral plexus is a very constant symptom.

Intercostal neuralgia has been present in several cases. In two of Landau's cases lumbar and intercostal neuralgia of the left side were present in right sided movable kidney. Gueneau de Mussey made the same observation. Menstruation as before stated aggravates noticeably the symptoms of movable kidney. The pain may be very greatly increased for some days before and after menstruation, though usually it ameliorates as soon as menstrual flow is well under way. As a result of the pain referred to the lower abdomen during menstruation, in many the mistake has been made of treating the pelvic organs considering the case as one of dysmenorrhœa. In a case of movable kidney complicated by nephrolithiasis which came under the author's observation several operations on the uterus had been performed for the relief of the dysmenorrhœa and menorrhagia which were the most prominent symptoms exhibited. Fixation of the kidney and removal of the stone has given complete relief from all pain during the menstrual period.

Many affected with movable kidney suffer from gastric disturbance varying in intensity from slight distress referable to the epigastrium with nausea to severe pain with more or less constant vomiting which have in many cases led to the diagnosis of gastric ulcer or cancer. Bartels attributes the gastric symptoms so common in movable kidney to pressure made by the dislocated kidney upon the descending duodenum thus causing intermittent obstruction with consequent dilatation of the stomach. It would be impossible for a movable kidney to make this pressure on the duodenum inasmuch as the kidney is displaced down-

ward and inward in a direction parallel with the descending duodenum and not against it, and therefore could not exert much pressure on this organ. Again, the same gastric symptoms are found in cases of movable left kidney. Landau considers that traction on the lig. duodeno-renale with kinking of the duodenum is the principal cause of the stomach sypmtoms. It would appear as if this disturbance could easily be explained if we consider the intimate relation existing between the nerve supply of the kidneys and the gastro-intestinal tract. The kidneys are supplied by the renal plexus which is formed by branches derived from the solar plexus, semilunar ganglion and the small splanchnic nerves. The communication existing between the solar plexus which supplies all of the abdominal viscera and the renal plexus seems to offer the most rational explanation of the symptoms referable to the digestive tract.

Jaundice is an occasional symptom of movable kidney. In some cases it is merely the result of the gastro-intestinal catarrh which is so frequently associated with this affection. In others it is probably due, as Weisker claims, to traction on the lig. hepato-duodenale and consequent dislocation of the common bile duct. Letten thought that direct compression of the common duct took place, but this would seem impossible.

The symptoms referable to the abdominal vessels are those produced by torsion or kinking of the renal vessels and by thrombosis of the renal vein, vena cava or ilias venus.

As a result of the first mentioned condition, there may be in rare cases a bruit which can be heard on auscultation over the infracostal fossa. The first recorder was one observed by Landau. Lately Futterer reports a case in which such a bruit led him to suspect aneurysm of the abdominal aorta. In case of Girard's (cited by Landau) thrombosis of the vena cava was the direct result of compression of that vessel by a movable kidney that had become adherent to it. Thrombosis of the iliac vein with consequent edema of the leg has also been noted.

Attacks of dizziness frequently associated with cardiac palpitation is another common symptom. These are undoubtedly the result of disturbances of the circulation indirectly through the nervous system; probably from traction on the branches of the abdominal sympathetic. Futterer regards dizziness next to gastric disturbances as the most frequent symptom of movable kidney.

Excepting in cases of pyonephrosis associated with movable kidney, there usually is nothing abnormal found in the urine secreted by the dislocated organ. In a series of eight cases examined by the author in which the Harris segregator was employed to collect the urine separately from the kidneys, in two there were pathological changes found in the urine. In one the presence of a few blood cells suggested the possibility of a stone, which was found on exploration of the kidney. In the second case, a left sided movable kidney, the urine from this kidney showed pus cells while the opposite was absolutely normal.

In certain cases of movable kidney, usually after violent exercise or heavy lifting, the patient is seized with vomiting and severe abdominal pain, so great at times as to cause collapse, and closely simulate intestinal perforation or strangulated internal hernia. Dietl was first to direct attention to these cases which by him were supposed to be due to the kidney becoming fastened in the retroperitoneal connective tissue. To this condition he gave the name of renal incarceration. Nearly all authors writing since the time of Dietl have coincided in this explanation of this phenomenon. Landau does not agree with Dietl, but concludes after a careful consideration of the subject that the symptoms of renal incarceration are mainly caused by circulatory disturbances the result of kinking or twisting of the renal vessels particularly the renal vein. Edebohls, after studying a case of renal incarceration in

which the symptoms immediately disappeared on manipulation of the kidney, believes the cause to be twisting of the renal vessels resulting from the lower pole of the kidney becoming pressed against the anterior abdominal wall in such a way that its further progress downward is arrested, while the upper pole continues to descend, thus causing a rotation of the kidney on its long axis with a consequent twisting of its vessels. This agrees with Landau's views on the subject. The acute symptoms of incarceration usually last in cases, treated expectantly, from 5 to 15 days. In these cases, in addition to the pain, vomiting, etc., one finds a tumor sometimes larger than a normal kidney which is very tender on pressure, and which when manipulated usually will bring on a recurrence of the nausea and vomiting. In addition the urine is often scanty and at times contains blood during first few days. These symptoms, with history of a movable kidney which frequently the patient has known to exist previous to the onset of the acute symptoms, will generally be sufficient to allow us to make a correct diagnosis. In many cases, however, the symptoms may lead us to suspect cholecystitis or appendicitis.

In considering the surgical treatment of movable kidney, it may be remarked that the medical treatment, particularly in the Weir Mitchell "Rest Cure," can be classed only as a palliative measure. Temporary improvement very often results but relapses occur as soon as the erect position is resumed. The treatment by application of abdominal supports or pads is also palliative, and probably never affects a permanent cure. In fact once a kidney becomes dislocated nothing short of surgical measures and the direct fixation of the kidney by some means will hold it in place.

The aim of this paper is to advocate fixation of the kidney in (1). All cases. When after a fair trial of the palliative measures the symptoms still persist. (2). Immediately in all cases where the occupation or habits of the individual preclude the possibility of benefit being derived from abdominal supports. In these cases no time should be lost in temporizing measures, but operative treatment resorted to in the beginning.

The operative measures for the fixation of the kidney is today practically limited to extraperitoneal nephrorrhaphy as first practiced by Hahn, and published by him in 1881. Many modifications of the immediate means employed in attaching the kidney to the abdominal wall have been advocated from time to time, but the operation is today essentially the same as the one devised by Hahn.

In this operation the usual curved lumbar incision from the 12th rib downwards along the inner border of the erector spinæ muscle and forwards and inwards over the crest of the ileum. The kidney inclosed in its fatty capsule is exposed and the capsule drawn into the wound. After this the next succeeding steps of the operation which comprehended the methods of fixation of the kidneys are not carried out by all operators alike. Of the most generally available means of uniting the kidneys to the abdominal wall may be mentioned, (1) Union of the adipose capsule, opened or unopened, to the edges of the incision. (2) Free exposure of the kidney by incision of the fibrous capsule and suture of this capsule to the abdominal wound. (3) Denudation of the kidney by stripping back the fibrous capsule along its convex border and fixation of the kidney by means of sutures passed through its parenchyma.

To these may be added the method of Senn in which he exposes the kidney, denudes its convex border and then fixes it in place by strips of gauze passed around the kidney and brought out through the lumbar wound.

Another means of fixation of the kidney which may be mentioned is that advocated by Schachner, and tested experimentally on the dog. This consists in making a pouch or pocket between the internal oblique and the transversalis muscles, in which the kidney is placed. His experi-

ments with this method on the dog were not very successful. He, however, regards the operation as practicable and feasible in the dog, but questions its applicability in man. It has not been attempted so far as I know on the human subject and would, it seems, be open to serious objections. The great danger of trauma to a kidney firmly fixed between the muscles of the abdominal wall would be sufficient to prevent its general adoption. Experimentally on the cadaver no difficulty is encountered in making a pocket in the anterior layer of the lumbar fascia in which the kidney can be placed. But this in the live subject would not appear rational. In case the kidney became firmly fixed the pain occasioned by pressure upon it by the contracting abdominal muscles would probably be greater than that due to the mobility of the organ. It must be remembered in this connection that the kidney is not under normal conditions immovably fixed behind the peritoneum, and that in our efforts to retain the kidney in place it is possible that the pain which occasionlly persists after operative measures have been employed may be due to an absence of its normal movements.

In this connection may also be mentioned the method employed by Pean of suturing the parietal peritoneum to the transversalis fascia and thus forming a pocket or support for the kidney. This does not appear to have given satisfaction.

The method of fixation of the kidney to the abdominal wall which has up to the present time given the best results (as shown by the statistics of Sulzer and others) is that of opening the fatty capsule pulling as much as possible out of the wound, and then cutting off the superfluous tissue. After this the fibrous capsule is split along the convex border of the kidney, and the edges stripped back from the kidney for a short distance. Sutures, preferable of catgut, are then passed through the cut edges of the anterior layer of the lumbar fascia, the fatty capsule and the fibrous capsule. The kidney is further supported by strips of gauze packed around and below its lower pole. The abdominal wound is then closed excepting at its lower angle where the gauze strips are brought out. The gauze packing should be allowed to remain for 5 or 6 days at least. After the operation the patient should be kept in bed in the horizontal position for 6 weeks, during which time the general health should be improved as much as possible.

We must admit that the operation of nephrorrhaphy or nephropexie with the present methods of fixation of the kidney is not all that could be desired, although the results are far from being bad. It would appear that from the suggestion offered by Wolkow and Delitzin regarding the surgical treatment of this disorder, efforts should be directed toward the restoration of the contour of the paravertebral fossæ. The intraperitoneal operation for the relief of movable kidney has been abandoned. Sulzer considers an intraperitoneal fixation justified in cases where there arises a question of diagnosis or where the kidney is adherent to some other abdominal organ. In either case it would be better after exploring the abdomen and freeing the kidney to close the peritoneal cavity and reach the kidney through the extraperitoneal route.

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PSYCHOLOGY VS. MEDICINE.*

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The constant aim of the physician is to heal disease by the shortest, safest and surest method at his command. From the days of Hippocrates to the present, medical men have been investigating the etiological factors, symptomatology and nature of disease and means of prevention and cure. The theory adopted as to the nature and cause of disease has largely determined the character of treatment. Two centuries ago the chemical theory of disease had many advocates. It was claimed that disease was the result of fermentative processes or a predominance of acid or alkali in the human body, and this determined the nature of the treatment adopted at that time.

The blood theory of disease has likewise had its advocates. It was argued that the blood was the principal fluid of the body and if it became unduly attenuated or altered in quality, disease resulted. By drawing off the bad blood, disease would be eliminated by the transfusion of good blood, new life would be instilled and health restored physically, mentally and morally.

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The latest theory resulting from scientific investigation may be called the microbe theory. That many of our most formidable diseases are the result of bacteria either directly or indirectly affecting the organism, has been clearly demonstrated. The therapy therefore of this large class of diseases includes Tuberculosis, Anti-toxins and other bactericidal remedies or agencies.

Outside of the regular profession there are also several interesting examples. If you go to the metropolis of your own state and inquire of Mr. Dowie and his followers as to the causes of disease, they will tell you that the cause of all sickness and suffering is sin or Satan, who is the author of evil and that as Jesus Christ comes into the world to destroy the works of the devil, therefore he is the true source of freedom. Jesus Christ cures disease in answer to the prayer of faith. Many examples might be cited of genuine cures wrought this way. If you will go to the little city of Kirksville, Mo., you will find there the seat of another philosophy known as osteopathy. Osteopathy teaches that disease is caused by the displacement of one or more bones interfering with the proper circulation of the fluids of the body and impairing the functions of the various organs. In harmony with this theory, the treatment consists of restoring the displaced bones and improving the circulation by certain manipulations and a long course of massage. Very many persons have availed themselves of this method of treatment and many cures are reported. A school of osteopathy has been established here and students have crowded its halls. Its graduates have pressed upon our legislatures with strong following for recognition. This well advertised system of charlatanry has found ready patronage from all the walks of life and its practitioners are found scattered throughout many of our states.

There has arisen in the latter part of this great nineteenth century a most remarkable system of religious belief combined with the art of healing. It is this

doctrine of Christian science that I wish particularly to consider in this paper. Christian science teaches us that all disease is the product of what is termed "mortal mind," therefore diseases being of mental origin, the only rational treatment is spiritual or mental in character.

Can diseases be healed through mental treatment is a question of widespread interest and of vital importance. If so, under what conditions and limitations? Has mental healing any scientific basis in the laws of nature, or is it a vain imagination or baseless superstition? An honest search after truth is always profitable. Truths have unequal values, but none are unimportant. If the author of Christian science has discovered and given to the world even a single new truth, she should receive our praise. But if she is teaching error or propagating a delusion, her work can result only in harm and should meet with our earnest opposition. The founder of this sect and system is Mrs. Mary Baker G. Eddy, now living in Concord, N. H. In 1866, she claims to have discovered or had a revelation of metaphysical healing. Formerly she had studied and practiced homeopathy, and from this derived some suggestions as to metaphysical healing, drifting from the use of infinitesimal doses to none at all.

In a recent lecture in N. Y. City Mrs. Eddy makes the following statement:

About the year 1869 I was wired to attend the patient of a distinguished M. D., the late Dr. Davis, of Manchester, N. H. The patient was pronounced dying of pneumonia, breathing at intervals in agony. Her physician who stood by her bedside declared she could not live. On seeing her immediately restored by me, without material aid, he asked me earnestly if I had a work describing my system of healing. When answered in the negative, he urged me immediately to write a book that should explain to the world my curative system of metaphysics.

Subsequently in the year 1875 she published a book entitled: Science and Health with Key to the Scriptures. This is the Christian science text book, and is read along with the Bible in all their churches and religious gatherings. It has reached a large circulation, having passed through one hundred and sixty editions of one thousand copies each. In 1867 the first organization of Christian science was perfected in Boston and is known as the Church of Christ Scientist. It began with a membership of twenty-six, which has now grown to more than 1,200. There are at present 316 organized churches. Upon the authority of Carl Norton, a lecturer on Christian science, there are 10,000 persons who are giving their time wholly to the reformatory and healing work of Christian science. Mr. Septimus Hanna, editor of the Christian Science Journal, in a recent publication makes the claim that there are at least 1,000,000 adherents to the doctrine of Christian science. Ten years ago a writer in the Popular Science Monthly said that the Christian science craze would have its day and die out like the blue glass delusion and other crazes of like character, and that already there were signs that its decadence had begun. In view of its present conditions with nearly 400 churches and 42 institutes, schools and academies scattered throughout the states from Maine to California with a growing literature, it does not seem apparent that this craze has even yet reached its zenith.

Let us briefly notice the teachings of Christian science as a religion.

To get a proper estimate of the Theology of Christian science one should read their text book, Science and Health, with key to the scriptures.

In this there is expressed a belief in God, the Father of all, the Principle of God; in the Bible as a guide to them, to which she attaches spiritual interpretation. In Jesus Christ our great example, the way shown. Their doctrine of prayer is unique. It does not consist of petition. It is silent, never oral. Their religious services consist of spiritual songs, the repetition of the Lord's prayer with its spiritual interpretation, and silent prayer, alternate readings from the Scriptures, and Mrs.

Eddy's book Science and Health, with key to the Scriptures.

In the first chapter of Science and Health we find the four fundamental propositions of Christian science, as follows:

1. God is all in all.
2. God is good. Good is mind.
3. God, Spirit, being all, nothing is matter.
4. Life, God, Omnipotent Good, deny death, evil, sin, disease.

These propositions read backward mean about the same thing. In elucidation and development of these propositions Mrs. Eddy has written much that is vague, incomprehensible and apparently contradictory. The following are the tenets to be signed by those uniting with the First Church of Christian science, Boston:

1. As adherents of Truth, we take the Scriptures for our guide to eternal life.

2. We acknowledge and adore one Supreme God. We acknowledge his Son and the Holy Ghost, and man as the Divine image and likeness.

3. We acknowledge God's forgiveness of sin in the destruction of sin, and that sin and suffering are not eternal.

4. We acknowledge the atonement as the efficacy, and evidence of Divine Love, of man's unity with God, and the great merits of the Way-shower.

5. We acknowledge the way of salvation demonstrated by Jesus, to be the power of truth over all error, sin, sickness and death; and the resurrection of human faith and understanding to seize the great possibilities and living energies of Divine Life.

6. We solemnly promise to strive, watch and pray for that mind to be in us which was also in Christ Jesus, to love one another and to be meek, merciful, just and pure.

As to the correctness of their theological teachings, we have no discussion. We leave that for theologians to decide.

What are the distinctive features of Christian science as a *system of healing*? This is a question of interest to all and one concerning which all medical men should have a definite knowledge.

Concerning the discovery of metaphysics in healing, Mrs. Eddy has made the following statement:

"The discovery came to pass in this way. During twenty years prior to my discovery I had been trying to trace all physical effects to a mental cause; and in the latter part of 1866 I gained the scientific certainty that all causation of mind, and every effect a mental phenomenon.

My immediate recovery from the effects of an injury caused by an accident—an injury that neither medicine nor surgery could reach, was the falling apple that led me to the discovery how to be well myself and how to make others so. Even to the homeopathic physician who attended me and rejoiced in my recovery I could not then explain the modus of my relief. I could only assure him that the Divine Spirit had wrought the miracle—a miracle which later I found to be in perfect accord with Divine law. I then withdrew from society about three years to ponder my mission, to search the Scriptures, to find the science of mind, that should take the things of God and show them to the creature and reveal the great curative principle, Deity."

"The Bible was my text book. It answered my questions as to how I was healed; but the Scriptures had to me a new meaning, a new tongue. The spiritual signification thereof appeared, and I apprehended for the first time, in their spiritual meaning, Jesus' teaching and demonstration and the principle and rule of spiritual science and metaphysical healing—in a word, Christian science. I named it Christian, because it is compassionate, helpful and spiritual. God I called Immortal Mind. That which sins, suffers and dies I named Mortal Mind. The physical sense or sensuous nature I called error and shadow. Soul I denominated substance, because Soul alone is truly substantial. God I characterized as individual entity, but his corporeality I denied. The real I claimed as the spiritual and eternal; hence, matter.

its antipodes, or temporal, must be the unreal."

The three following fundamental propositions are held by Christian scientists:

1. There is no such thing as matter.
2. There is no sin, sickness or death.
3. The healing of disease is brought about by right thinking.

Numerous quotations might be made from the writings of Mrs. Eddy and other prominent writers of this faith, proving their belief in the above propositions. "The science of mind shows conclusively how it is that matter seemeth to be but is not." (Science and Health, page 17.) "If Christian science takes away the popular gods, sins, sickness and death, remember it is Christ. Truth, who destroy these evils and so prove their nothingness. The dream that matter and error are something must yield to reason and invitation, then mortals will behold its nothingness and sin and sickness will disappear to their wishes." (Science and Health, page 293.)

Ought we not then to approve any cure effected by making the disease appear to be what it really is—an illusion.

It teaches that matter is the falsity not the fault of existence. Evil is a negation because it is the absence of God. It is nothing because it is the absence of something.

What is termed disease does not exist. It is not mind nor matter.

It must be clear to you that sickness is no more the reality of being than sin is. This mortal dream of sickness, sin and death should cease through Christian science. Then one disease would be as readily destroyed as another.

Include moral as well as physical belief in your efforts to destroy error. Cast out all manner of evil. "Preach the Gospel to every nation. Speak the truth to every form of error. Tumors, ulcers, tubercles, inflammation, pain, deformed spines, are all dream-shadows, dark images of mortal thought, which will flee before the light."

The *method* of cure is subjective and simple.

"Stick to the Truth of Being, in contradistinction to the error that life, substance, or intelligence can be in matter. Plead with an honest conviction of truth, and a clear perception of the unchanging, unerring and certain effect of Divine Science. Then if your Christianity is half equal to the virtue of your plea, you will heal the sick."

The patient may cure himself, or he may have the assistance of another known as a healer. The healer unusally sits beside the patient, speaks encouraging words, reads selections from S. and H., and then closing his eyes remains silent while he concentrates his mind upon the patient and mentally rebukes the disease.

Christian scientists also practice absent treatments. By their methods of metaphysical healing, Mrs. Eddy claims to have wrought many wonderful cures. In a recent lecture published in the Independent Statesman, of Concord, N. H., Mrs. Eddy makes the following remarkable statement:

After my discovery of Christian science, I healed consumption in its last stages, that the M. D.'s by verdict of the stethoscope and the schools, declared incurable, the lungs being mostly consumed. I healed malignant diphtheria; and carious bones that could be dented by the finger, saving them when the surgeon's instruments were lying on the table ready for their amputation. I have healed at one visit a cancer that had so eaten the flesh of the neck as to expose the jugular vein so it stood out like a cord; I have physically restored sight to the blind, hearing to the deaf, speech to the dumb, and have made the lame walk.

In a recent article entitled "Christian Science, What It Is and What It Is Not," I. C. Tomlinson makes the statement that by this method of healing, more than a million of persons have been restored from sickness to health, and that Christian science is rapidly spreading into all parts of the civilized world. In view of such astounding statements, a panic might reasonably be supposed imminent among the doctors, druggists and undertakers. A Christian scientist related to me the fol-

lowing cures which came under her personal observation

Case 1. Mrs. M. G., married, age about fifty, mother of seven children, became affected according to the diagnosis of medical men, with phlegmasia dolens and Bright's disease. Suffered many things at the hands of physicians. She was an invalid for many years. For months she was confined to her bed or in an invalid's chair. Her physician told her family she had but a few weeks to live. She went or was taken to a distant city for treatment by a Christian science healer. She remained three weeks under treatment, at the expiration of which time she was able to return home alone and walked with ease to the church several blocks away from the depot. Her cure was complete and permanent.

Case 2. C. M., a boy six years of age. Had an attack of malignant diphtheria, affecting throat and nasal passages. Diagnosis made by the family. There was high fever and delirium for two days. The next day patient was better and on the following day was able to go out and play. No other treatment given but that of the Christian science healer.

Case 3. Stewart D., a boy five years of age, who had received instruction in Christian science, while playing in the house fell against a hot stove. His face was severely burned on one side. The skin came off of the part burned. He fell to the floor crying with intense pain. His mother who was a Christian scientist, and being present, immediately addressed the child as follows: "Stewart, I want you to remember that God is all—he is all power." The boy repeated this expression, "God is all, he is all power," over and over again. The pain left him instantly and did not return. Within a week his face was well and there was absolutely no trace of scar or other evidence of injury. These cases are related as common illustrations of the testimony of Christian scientists in their weekly meetings. Thus the delusion of curing diseases which "were only imaginary" and injuries which "never existed" is kept up. In the description of cases there will usually be noticed a lack of scientific accuracy in describing the disease or condition of the patient. One is left to conjecture as to the reliability of diagnosis. Usually there is an apparent effort to make out the case as desperate as possible. The following "beautiful demonstration" is related in the last issue of the Christian science Journal:

"My litle girl, then about four years old, came in screaming. I was upstairs at the time, and when I reached the kitchen I saw a pitiful sight. There she stood with her little hands over her left eye, her face and hands covered with blood, and on the floor beside her lay a large pair of scissors. She said her little brother had pushed her and she had fallen with the open scissors, the point of which had pierced her eyeball. I had been in Christian science but a few months and felt greatly alarmed. I quickly tied up her eye, never looking at it, and ran to a neighbor scientist and asked her to call a practitioner who lived close by. She was not at home, and as something had to be done immediately, I felt I must try to make this demonstration myself. I took the child on my lap and commenced treating myself for fear, using the verse from Isaiah, "Fear thou not; for I am with thee; be not dismayed; for I am thy God; I will strengthen thee; yea, I will help thee; yea, I will uphold thee with the right hand of my righteousness." My fear soon abated and I know that God would help us. I also used the 121st Psalm. "I will lift up mine eyes unto the hills from whence cometh my help," etc. The child soon went to sleep; I laid her down on the bed and she slept for about four hours undisturbed; when she awoke she said, 'Mamma, my eye is almost all well now.' As soon as the practitioner returned she came to our house to see what was the trouble. She said the work was done and her help was not needed. Two days after this the bandage fell off and the eye, which had been closed since the accident, had again opened, and I could see plainly the three cornered cut from the scissors. In three weeks one could hardly see any dif-

ference between the two eyes, and to-day one is as perfect as the other."

The publication of this case and similar ones may and probably does tend to popularize this method of healing among people who take only a superficial view of such subjects. Most people care little for theories. They look at facts or what they suppose are facts, and reason as follows: here is a case of surgery treated successfully by Christian science:

"My boy has a hole punched in his eye, therefore I will send for a Christian scientist—he healed the one, therefore he can heal the other." The fallacy of such reasoning is apparent, although it is common. This case just related proves to the true scientist nothing for metaphysical healing. It is evident that the eye received an injury, but there is absolutely no evidence that the injury was anything more than a slight wound, which, unaided, nature would heal in a few days.

In this same Journal another enthusiast tells of the beneficial influence of Christian science upon animals. He quotes from Science and Health as saying, "God is the life or intelligence which forms and preserves the individuality and identity of animals as well as man," and relates how the family cat was saved from an untimely death after having fallen into the hands of rude and cruel dogs, which tore the skin off of the under part of the body. Christian science treatment was administered with the most beautiful results. Likewise the family horse had become a convert to Christian science. Formerly he had many naughty traits of character, but these had all disappeared and they had named him Christian science.

The doctrine of the non-existence of matter is held by all scientists and is fundamental. If you admit that doctrine as true, you can readily conclude that pathological states cannot exist and disease is really an illusion. The theory of the non-existence of matter did not originate with Mrs. Eddy. Several philosophers have held the view that matter was nothing but one of the appearances of energy. But the weight of argument is all against them. All rational thinking denies the truth of it. I am as conscious of my body and its members, of health, of sickness and of pain, as I am of my own existence. If you deny such testimony of consciousness, you may deny everything. One can more easily prove the non-existence of the soul as that the body does not exist. To say there is no body, no clothing, no houses, no mountains pointing heavenward, no rising sun, no twinkling stars, is giving utterance to speech not far removed from insanity. The common sense of the human family testifies as to the falsity of this fundamental doctrine and declares that the human body has a real existence and that sin and sickness and death are deplorable realities.

The doctrine of Mrs. Eddy that all is mind is a reaction from the prevalent materialism of this age. According to materialistic theories, thought is only a product of nerve cells. "The brain secretes thought as the kidneys secrete urine." The brain is not the instrument of the mind, and by means of which mental phenomena occur, but it originates mental phenomena as an effect of nutrition. Neither of these extreme doctrines represent the views of a large class of scientific enquirers after knowledge. Nineteen centuries ago the apostle Paul promulgated the doctrine of man's trinity in unity when he spoke of the body, soul and spirit as one, and the most recent psychological researches indicate that he was right, and that man consists of matter, energy and intelligence in wonderful unity.

INFERENCES AND CONCLUSIONS.

1. Cures are effected by Christian science healers similar in character to those wrought by Faith healers, hypnotists, mind healers, mesmerists, pagan or Catholic priests and Mormon apostles. Christian science cannot establish any claim of superiority over other systems of mental healing. In the early part of this century Prince Hohenlophe, Roman Catholic Bishop of Sardia, performed many well authenticated cases according to Dr. Tuke,

an eminent writer on the influence of the mind upon the body. He was a gentleman of distinguished learning and high standing, and his prayers were efficacious in relieving many that were sick. In many places in Roman Catholic countries and in the Greek churches of Russia, as well as in our own "Zion" here in Chicago, there may be seen many crutches, splints or other apparatus brought there by persons diseased or deformed, and who received such relief or cure that they felt no longer their need.

"Eddyism" undoubtedly may lay claim to many genuine cures; likewise, also, the great professor of magnetic treatment of Nevada, Mo. Nor is there any reason to doubt that the celebrated Dr. Newton, the renowned colored woman of Connecticut, Mrs. Elizabeth Mix and the famous W. E. Boardman, of London, have each effected cures as remarkable, as varied in character and as genuine as any that Christian scientists can produce. What physician is there who has not witnessed the most satisfactory and sometimes astonishing results follow the administration of a bread pill or other placebo. The fact is, that many of the ills that flesh is heir to are so largely imaginary that any innocuous drug or other harmless agency may act as a fulcrum for the mind and bring the most satisfactory results.

2. Metaphysical healing of the present day does not parallel the works of Jesus Christ or his apostles. Christian scientists claim that the injunction of Jesus Christ to his disciples to preach the gospel, heal the sick, cleanse the lepers and raise the dead, applies with equal force to his disciples of the present time and in all ages. It is claimed that their method of healing is the same as that practiced by Christ and by his followers for the first three hundred years. If it be the same in kind, it certainly is lacking in degree. We are told that Jesus Christ healed all manner of diseases and all manner of sickness. The lame were made to walk, the blind to see, the deaf to hear and the dead were brought to life. These cures were wrought easily, instantaneously and the result was complete and perfect. With Christian science the cures are brought about gradually and are often incomplete and unsatisfactory, relapses frequently taking place. In one instance Jesus Christ healed one that was born blind, another that was lame from his mother's womb; he raised from the dead one who had been in the grave four days. The night before his crucifixion while in the garden of Gethsemene, Peter drew his sword and cut off the ear of Malchus, a servant of the High Priest. Jesus touched the ear and healed him. There is no satisfactory proof that these mighty works have ever been equaled by any practitioner of mental healing or of any other method. All mental healers are unable to dispense with surgery. Mrs. Eddy says: (Science and Health, page 400.)

"Until the advancing age admits the efficacy and supremacy of mind it is better to leave the adjustment of broken bones and dislocations to the fingers of a surgeon, while you confine yourself chiefly to mental reconstruction and the prevention of inflammation or protracted confinement." This is certainly sensible and timely advice. Nearly all suits for mal-practice come in connection with surgery—the physician and the metaphysical healer may make the most serious blunders, but they are covered up, possibly in the grave and are never known.

3. Metaphysical or mind healing, has a basis in the laws of nature. That mind is superior to matter and that it has a wonderful influence over the body, is well understood. Who has not seen and felt the effect of certain emotions acting through the nervous system and affecting blood-vessels and circulation, such as the crimson blush of shame or the pallor of face and coldness of the extremities from fear or sorrow. Who has not felt the exhilaration of joyful news or witnessed the depressing effects of sad news. The tottering and feeble steps of age are made strong and steady by recollections of youthful days. The beauty and bloom of youth are

made to fade and wither by grief and disappointment. What physician has not realized the futility of all remedial measures when hope had fled or witnessed the good effects of cheering words or a bright smile for the sick one.

That certain emotions or mental state of the mother may affect the unborn child is another illustration of the effect of mind upon the body. Whether this be true or not, it is a very prevalent belief among mothers that there is much evidence in support of the belief.

Dyspepsia, vomiting, diarrhœa and jaundice are frequently produced by certain emotions or mental states. Intense sympathy will produce in the witness the same effects that purely physical causes have produced in the patient. The writer recently attended a case of obstetrics. Confinement occurred at night. Just across the street lived a sympathetic friend and neighbor, who knew that labor was in progress. Her sympathy for the patient was such that she developed intense pain in the back and hips to such an extent that rest or sleep was impossible, and the husband was compelled to get up and resort to the liniment bottle and brisk rubbing to relieve the sufferer.

A young lady, the daughter of a country doctor, and well known to the writer at the time of the incident, had the following experience:

One day there came to her father's house an old colored man who had a swollen face and was suffering most intensely from a diseased tooth, which required extraction. The comical appearance and behavior of the old man greatly amused the young woman, who was entertaining other members of the household by imitating him. The mother sharply rebuked the daughter, telling her it was wrong to make fun of the old man and she ought to be made to suffer in the same way. In a little while she began to have a tooth-ache, the face became swollen and the pain became insufferable, so that the father extracted her tooth, although there was no appearance in it of disease.

That the mind may utterly disregard bodily injury or disease, is often demonstrated. The soldier in battle will fight on, not knowing that he has received a wound. The frenzy of the fight renders the mind extraordinarily oblivious to pain. Concentrated attention with strong will power coupled with buoyant hope will sometimes produce remarkable results in the way of ignoring or checking disease. Is it then unreasonable or unscientific to suppose that by utilizing the powers of the mind we may direct that intangible something we call vital force to a diseased organ and promote its healing. Is it not true that healthy mental states promote assimilative and nutritive processes throughout the body, and is there not then some solid foundation in the laws of our being for mental therapeutics.

4. The limitations of mental therapeutics cannot at present be definitely stated. It is absurd to claim that it is a universal panacea. We know that certain mental states may affect the body favorably, and that other mental states may be injurious. That mind treatment is applicable chiefly to diseases classed as functional neuroses is highly probable. There may be perverted and diseased states of consciousness which have no discoverable organic basis and it is reasonable to treat these diseased states of consciousness by calling into action the faculties of the mind. There is no reason why Christian science may not cure a large number of cases that apply to it for treatment. It is altogether probable that 75 per cent of all cases of sickness would recover under favorable sanitary and hygienic conditions without any treatment whatever. That Mrs. Eddy has actually accomplished all the wonderful cures which she claims, will require more than her unsupported testimony to verify. That Christian science is lacking in many of the characteristics of a genuine science; that it is founded upon false promises; that its teachings are incoherent, absurd and contradictory and

that what it has accomplished as a system of healing has been grossly exaggerated, cannot be reasonably doubted.

LEGAL ASPECT.

The law passed by our last legislature and in force after July 1st, makes no restrictions upon practitioners of Christian science or any form of mental healing. It is not the function of a legislative body to prescribe or proscribe any particular system of healing. It is the inherent right of every individual who may be sick, to choose his own method of treatment, unless in so doing he trespasses upon his neighbor's rights. Every person who proposes to treat the sick should be required by law to become so proficient in the fundamental branches of medical education that they will be enabled to properly recognize and diagnose disease. Almost every city and village in our State have local laws requiring a report to the Board of Health of contagious or infectious diseases. All practitioners of the art of healing, including Christian science practitioners, are and of right ought to be amenable to such local laws. Whoever conceals the existence of contagious disease or willfully or negligently fails to report such cases where such report is required by city or village ordinance, thereby endangering the health and lives of others in the community, not only violates law, but he trespasses upon the boundaries of his neighbor's rights. If Christian scientists fail to observe such laws as these, they are a menace to the welfare of the community.

In view of what has been done in the line of mental healing, the public has a right to demand that physicians give it the benefit of this healing agency. It is a pleasant kind of treatment and possibly less expensive than drugs. It cures some cases when medicines fail, and it has no harmful effects following its use. Whatsoever of good there may be in it, it should be taken out of the hands of ignorant enthusiasts and charlatans and utilized by those who know enough of the nature of diseases to recognize symptoms indicating the fitness for this agency and enough about science in general to realize that a means suitable to remove one condition may be altogether inadequate and unsuitable for the removal of another.

DISCUSSION.

DR. JOHN H. HOLLISTER, Chicago: It occurs to me that while valuable thoughts connected with suggestions were admirably brought out by Dr. Sudduth in his paper, and restated in the paper just read, there is, it seems to me, an erroneous conclusion to this paper, in that Christian science may have its time and place for curing people, and while it may be true that some are benefitted by it, it permits of a fatal neglect in those cases where it is not capable of coping with disease when it is making its firm foothold with the chance or possibility of fatal results. I have the conviction that if the cases of failure in treatment that we have been considering were spread on record beside the others, no argument would be needed to see the folly of Christian science in many respects. In the short time at my disposal I desire to place a case alongside of those of Mrs. Eddy. A young girl, between 20 and 30, whom I had known from the time she was six years of age, was taken with congestion of the lungs. Pneumonia developed. This young woman attended the Christian science church in Chicago and her case was mentioned by Mrs. Eddy repeatedly. The girl was told not to consider herself sick. She endeavored to cherish that fond delusion, but the progress of the disease was steadily onward, and from the sixteenth day to the time of death she gradually became worse and died of acute pneumonia. Her sister incidentally gave me an outline of the progress of the disease, and all this time they were assuring themselves and her that she was not sick. One of the strongest of the believers and most responsible, is the wife of a gentleman who is a physician. Just before her gasping breath he was called in to write a death certificate, and with that certificate she was buried. The interest of our family was such that we called on the morning after death and were invited to view the remains, and if I have seen one in which there was evidence of the extremest forms of sickness and of agony, it was in this case. From the history of the case, as I elicited it, there was nothing but a steady onward progress of this disease as we naturally anticipate it from its inception to a fatal termination, and you will never find this case on Mrs. Eddy's record.

DR. W. X. SUDDUTH, Chicago: We have had a very careful expose of Christian science. This paper, however, is a misnomer, so far as its title is concerned. Instead of being pyschology versus medicine, it should be Eddyism versus medicine. The essayist has brought out all the strongest features that Eddyism can claim. However, he has overlooked one point. I am not a believer in Christian science. The name they have adopted is a misnomer in it-

self. I am not bigoted enough to think that there is not a grain of truth in any cult or creed. The two points in Christian science which make it live are, first, the element of suggestion. The other is the state of negation in which the mind is placed by reason of their system of denial. By this system of denial they establish a negative state of mind which is a psychological position, perfectly tenable in combating disease. There is no exposition in any treatise that calls attention to this psychological aspect of the question—this negative state of mind which they establish by their system of self-denial. Christian science has taken a firm hold upon the people. On Sunday in Chicago you can see more carriages assembled in front of the Christian science church than in front of any other church in the city of Chicago. They do away with sympathy. To sympathize with any disease in their tenets is wrong because there is no such thing as disease. The tendency of the doctrine is to establish a system of personal self-aggrandizement or personal benefit. Nevertheless, I concede two things that make it possible for Christian science to live—the element of suggestion, and the negative state of mind that they produce. They kill the emotions, and as I tried to point out in my paper, the emotions play an important part in the course of disease unquestionably. What is it that makes immunity? Why is it that you and I, nurses and priests, go among the infectious diseases and are seldom taken with them? In the history of plagues the people who are panic-stricken are the ones who are usually attacked. Why is it that infection to-day is more virulent than it ever was before? Why is it that more physicians are inoculated to-day than there used to be in times when they did not know anything about the infectious micro-organisms? With all our advance in antisepsis, more physicians today are infected than there ever were before, simply because they have learned the absolute virulence of micro-organisms; they are panic-stricken, and that emotional state, which is manifected by fear, prepares the fluids of the body and makes them good culture media for the development of microorganisms. Many of our patients lose hope; fear strikes them; they become panic-stricken, and it is your duty and my duty to hold up the light before them. These emotional states play a great part in medicine, and chemical analyses have shown that each and every emotional state has a corresponding chemical reaction.

Dr. Denslow Lewis, Chicago: It may perhaps interest some of the members if I supplement the remarks of the essayist by one statement in regard to Dowie and his methods. The essayist has well said, that faith is considered an essential thing in the cure, but those of us, who have had occasion to observe the method, know that in order faith may be sure, he makes it also very plainly evident that faith must be manifest by works, and works, of course, in the case of the poor deluded victims mean contributions, so that when a man with ankylosis of the knee does not recover as rapidly as he thinks he should, he is assured that he has but little faith, and his faith must become more manifest by more generous contributions. A man may mortgage his farm, or give everything he has, and I believe the Bible says something like this, that all that a man hath will he give for his life or for his health. It is along this line and principle that these people work, and through which they may pride themselves on resembling Christ. Facts should not be lost sight of.

Dr. E. W. Weis, Ottawa: I wish to supplement the remarks made by Dr. Hollister with reference to the failures of Christian science, and if their failures were given more publicity this cult would hang itself in a short time. A case occurred recently in our neighborhood, about a week and a half ago. The healers had been treating a young woman, a school teacher, for consumption. They had been telling her for weeks and weeks that she was not sick; that she would get well, and she believed herself well. She did not get well.

Another case, a young woman, came under my observation, who vomited a good deal in the mornings. She was a believer, and she tried her very utmost to overcome vomiting, but finally gave it up, and a few doses of bromide relieved her.

Another case was that of a little boy who had been subject to incontinence for several years. The Christian scientists tried their best to heal him. They attempted to cure him by their methods for about a year and a half, and finally gave it up. Under generous doses of belladonna, administered by a physician, the little fellow was soon well.

Last summer one of our attorneys, who is subject to hay fever, agreed to give one of the healers $10.00 a week, and he was promised a cure at the end of two or three weeks. For eight or ten years he had been in the habit of going to Mackinac to be relieved of his paroxysm. This time, however, he was to be cured by a Christian scientist, but notwithstanding their treatment, his hay fever became so bad that he eventually had to go to Mackinac in order to get relief. The explanation in this case was peculiar. One of the healers stated that the reason he was not cured was because the sin in him was a hateful beast and hard to control.

Dr. J. E. Allaben, Rockford: One would judge from the remarks made by Dr. Sudduth that he believes somewhat in Christian science, and that it has some power in the healing of disease. I wish to be placed on record as protesting against any such belief. We know that in cases of actual disease Christian science is of little or no value. In the case of a fractured bone, as far as the setting of it is concerned, Christian science must stop. When it comes to cases requiring actual demonstrations, Christian science absolutely fails.

Dr. J. A. Baughman, Neoga: The paper interested me very much. Most of us believe more or less in psychological influence in the treatment of certain diseases, but it is

astounding to think that these psychological processes are one of the strongest features of the charlatan. I am not quite sure whether the charlatan or the people themselves are to blame for this state of affairs. It has often seemed to me as though the inscrutable desire for the miraculous, leads to these processes to such an extent as to make them a national folly. From what has been said, I am led to think that Dr. McAnally must have read the work of Zola on "Lourdes," before he wrote his paper. I believe we are inclined to correct in the wrong place when we attempt to educate charlatans that are dealing with the main issues. The only way to overcome the evil effects of Christian science and other cults of a similar nature is to educate not only ourselves, but the public at large.

DR. H. MCKENNAN, Paris: The fact that Christian science has such a hold upon the people demonstrates to us that we ought to handle it carefully. When we attacked homeopathy one hundred years ago with all the ridicule and condemnation we could, we thought it was the best way to handle it, but it did not work. The people take hold of these things without reason. I do not know the proper method of dealing with this question. We have a great many followers of this philosophy or cult in our town. I desire to mention two cases, one the wife of a railroad man, a hypochondriac. She was treated by fifteen or twenty physicians over the central and eastern part of the state, and being in bed nearly all the time. She finally fell into the hands of Christian scientists and soon got well. They did what physicians could not do.

Another case was the wife of a very prominent politician, who had carcinoma of the uterus. After a physician had diagnosed the case, he told her she would not get well. She went to Christian scientists with the grave prognosis of the physician, and it is said that she recovered.

REPORT OF CASES IN GALL-BLADDER SURGERY AND THEIR SEQUELÆ.*

BY J. E. ALLABEN, M. D., ROCKFORD.
Surgeon to St. Anthony Hospital.

Before proceeding to the report of cases I wish to devote a few moments to the consideration of the function of the gall bladder.

A part of what I have to say upon this question will be an extract from my paper published in the North American Practitioner of Oct., 1897, where I made the assertion that the gall bladder was a useless rudimentary organ like the appendix vermiformis. In casting about to find a place in the human economy where this organ would fit, writers have propounded various theories, none of which in the light of today seem to be entirely satisfactory. Physiologists and anatomists discovered this organ in the human body, and so thought it was placed there for some great work, and ever since the discovery they have been trying to find some use for it. Bold and unconfirmed as may the statement seem, I will say that no sensible reason can be given from a physiological standpoint, for the existence of the gall bladder.

Dr. J. B. Murphy deals with this subject in his essay on "Operative Surgery of the Gall Tracts," (read before the section on Surgery and Anatomy at the 44th annual meeting of the American Medical Association.) He argues that the function of the gall bladder is not that of a storehouse for bile, but that it is "the controller or governor, of the tension of the bile circulation," that it acts regarding the flow of bile from the common duct, in the same manner that the air chamber acts in a fire engine; that is, is induces a steady flow instead of a pulsating one. Dr. Murphy supports his theory by certain facts, viz: That the gall bladder holds but one ounce, and that during digestion at least ten ounces are poured into the duodenum, and that during twenty-four hours forty ounces are secreted; that it is not capable of emptying itself by "inherent contraction" of more than one-half drachm, and therefore the amount added to the bile current from the gall bladder is of no consequence; that the gall bladder does not empty itself is proven by the fact that it is never found empty, either anti-mortem or post-portem, and that the bile in the bladder is of higher specific gravity than that in the ducts.

These points are well taken and indicate a step in the right direction, but regarding the idea that the function of the gall bladder is to control or regulate the flow of bile, there is much doubt.

If the gall bladder acts as the air chamber of a fire engine, it must be conceded, First: That it possesses an elasticity com-

*Read at the 49th Annual Meeting, Cairo, May 18, 1899.

parable in a certain degree to the air in the air chamber, or to an elastic bulb like that connected with a Paquelin cautery. Second: That there must be an impediment to the exit of bile into the duodenum sufficient to dam this fluid back in the ducts and into the gall bladder with enough force to stretch the tissues of the gall bladder.

As to the first concession, Dr. Murphy states himself that the gall bladder is not elastic, but contains more fibrous than muscular tissue; that it cannot empty itself of more than one-half drachm of bile, and that owing to a lack of elasticity when the gall bladder is punctured the opening made by the needle does not close, but allows the bile to escape into the peritoneal cavity. How then can we attribute to this organ a function like that of the air chamber in a fire engine?

As to the second concession, I would say that we can hardly conceive of a resistance at any point in the tract of the common duct sufficient to dam back the bile into the gall bladder and put this inelastic organ on the stretch.

There is undoubtedly some impediment to the free flow of bile into the duodenum caused by the sphincter muscle at the terminus of the common bile duct and owing to the fact that the last three-fourths of an inch of the common duct passes between the muscular coats of the intestine. If it were a necessity that the bile should flow in a steady stream into the duodenum this peculiarity of the structures at the terminal end of the common duct would tend to cause a constant flow without the assistance of the gall bladder. Therefore, the presence of this organ for such a function would be superfluous.

Again it has been demonstrated that a slight backward pressure upon the bile stream causes resorption and jaundice. Upon this point Foster's physiology says: "Unlike the case of saliva, the pressure under which the bile is secreted never exceeds that of the blood, and is in general very low. When a water manometer is connected with the gall bladder of a guinea pig, the ductus choledochus being ligated, the fluid may rise in the manometer to about 20 m.m. (Equivalent to about 16 m.m. mercury). But not much beyond. If water be poured into the open end of the manometer so as to raise the pressure much above 200 m.m. resorption into the circulation takes place, and the fluid in the manometer sinks to, or even below, the normal level."

To ascertain the opinion of physiologists of the present day regarding the function of the gall bladder, I addressed letters of inquiry to the department of physiology of two medical schools. Dr. Winfield S. Hall, of the Northwestern University Medical School, I quote in part. He says : "It is true, as you say, that the gall cyst is a diverticulum of the gall tract. Gould says that the gall bladder is 'a reservoir for the bile.'" That the bile is retained in the bladder for some time (some hours), is evident from the fact that bile from the gall bladder contains a much larger percentage of mucus than does that which passes direct to the alimentary tract without being retained for a time in the gall bladder.

Inasmuch as the mouse, the elephant and the donkey are without a gall bladder, it must be evident that this viscus is not essential to life. I would not say that it is without function; rather that its function is to retain the bile, or a portion of it during those periods when it is not required in the alimentary tract, but that this function is not so important but that the gall bladder may be dispensed with altogether."

One might infer from Dr. Hall's statements two things: 1st, that the amount of bile the gall bladder is capable of holding is sufficient to be of importance in the process of digestion; 2d, that by the bile remaining in the gall bladder for some hours, there was imparted to it some substance from its mucous membrane that rendered it more useful in the economy, than ordinary bile.

We have already observed that it would not be possible for one ounce of bile (the

amount held by the gall bladder), to be of special service in the processes of digestion, when the amount of this fluid used in the course of twenty-four hours equals 30 or 40 ounces.

Regarding the second supposition, we would cite the experiments made by Birch & Spong. (See Annual of the Universal Medical Sciences, 1888, Vol. V, P. 336.) In two cases of fistula, they were able to collect and analyze the normal secretion of the gall bladder. The amount secreted was something over 20 c.c. in 24 hours. The reaction was distinctly acid and the chemical examination was as follows:

Water 979.7 parts.

Solids 20.3 parts.

The analysis of the solids gave:

A.	Organic-Mucin and trace of albumen	12.09
B.	Inorganic-Chlorine	3.84
	Carbon dioxide	.29
	Sodium (combined with Cl.)	2.50
	Soda (combined with C. O. 2)	.41
	Potassium Salts and Phosphates	1.17

The author adds: "The secretion of the gall bladder then contains no bile, salts, or biliary pigments. Physiologically, it was shown not to have any diastatic, or emulsifying action. It cannot possess, therefore, any digestive value."

The Junior Dean of Rush Medical College responded to my inquiry regarding the function of the gall bladder, as follows: "It is difficult to give a satisfactory reply to your question, because our previous notions in regard to the function of the gall bladder must undoubtedly be changed and at present, our knowledge of its function is very indefinite. The generally accepted notion that it is a reservoir for the bile seems utterly illogical when its capacity is compared with the total amount of bile secreted daily, and I think most physiologists today have abandoned that idea of its function. It is thought by some to be an equalizer of pressure in the bile ducts, much like the air chamber in a force pump; but this conception is not fortified by any experiments with which I am acquainted, nor by positive evidence of any sort."

"The idea that it is a rudimentary organ like the appendix seems to me to have little justification, because it is not relatively larger in any of the animals lower in the series with which I am acquainted, than it is in man. In fact, the conservative position for the physiologist to take in regard to the gall bladder at the present time, I think, is one of judicious diagnosticism. Like the appendix, the gall bladder is of signal service to the operative surgeon; but, physiologically, we know little of its real purpose."

Whether, or not, I am justified in saying that the gall bladder, like the appendix, is a rudimentary organ, may be questioned; but I am sure that I am justified in saying that it is functionless and, therefore, useless. While these questions do not at present have great bearing upon the treatment of diseases of this viscus, yet we are always thirsting for knowledge and it would be interesting to know how it originated and what is its destiny.

The surgery of the gall tracts has been given an immense amount of study during the last six or seven years, and within this period the subject has been so evolved that the proper modes of treatment of pathological conditions in these organs are pretty well defined.

In reporting a few cases I make no claim of presenting facts that will establish new truths, but the experience of every individual varies somewhat from that of every other one and a faithful recital of these experiences is always of some benefit to fellow workers.

It is always a pleasant task to report those cases which have a very successful termination and thus magnify our skill in the eyes of our listeners; but no one has universal success and it is by the unpleasant experiences and complications that we sometimes are most profited; therefore, I have selected a half dozen cases, the most of which have had some trying complication.

Case I.

Mrs. Mary H., age 62, widow. Has been a strong, hard-working woman all her life. Ten years ago was taken with a severe pain in the right shoulder and

breast; pain radiated to right shoulder blade around to left side of chest, and finally became localized over epigastric and right hypochondriac region. Pain in these regions was intense and was associated with vomiting, which continued until pain was relieved by a hypodermic of morphine. After the attack she sweat profusely and was tender over affected parts for some days. From this time on she had attacks of this character every five or six weeks for a period of one year. She states that she then got some "patent pills" and took from one to two a week, which gave her some relief; would have but one or two attacks each year. During the last year, however, she had three or four attacks. She never had jaundice. (October, 1895, she went to Maine to visit relatives, and while there five months later had an attack of cystitis, on account of which she returned to her home in this city March 18th, 1896. She was under the care of a physician several months for this trouble.) Suddenly on the night of July 17th, 1896, she was taken with severe pain in left side over the region of the spleen, but the pain soon shifted to the locality of the stomach and right hypochrondriac region. A physician was called who diagnosed inflammation of the bowels and gave a hypodermic of morphine for the pain.

I saw the case on the 19th, with temperature 102 F., pulse 130. Had had a chill the night before. Abdomen tympanitic over left and lower part, dull on percussion over a region extending from border of ribs on right side downward two-thirds distance to ilium and nearly to median line. I thought I could detect fluctuation, but was not certain. Some induration.

Diagnosis: Intra-abdominal abscess, probably of gall bladder origin.

Operation July 20th, 1896.

An aspirator needle was cautiously inserted at the most indurated portion, two inches below border of ribs at the external border of the right rectus muscle. Three or four ounces of pus ran into the bottle. A three inch incision was then made over the locality parallel with the rectus muscle and extending inward to the peritoneum, which was found adherent to the abscess wall. A deeper incision carried the knife into the gall bladder, from which escaped three or four ounces of offensive pus and decomposed bile. With forceps five gall stones were extracted, measuring from one-half to three-fourths of an inch in diameter. Drainage was maintained by a rubber tube, replaced in a week with a glass drainage tube, which was worn about a month.

For a few days after the operation considerable bile flowed from the wound as well as mucus and pus, then the absence of bile in the dressings was noticed and never returned again.

The wound healed kindly excepting a small fistulous opening which would close externally for a week or two, during which time the patient would suffer some distress in the gall bladder region. The fistula would then open spontaneously or be opened by the patient when a half ounce of glairy mucus would escape giving immediate relief.

Two months after the operation the patient was enjoying good health, but in walking, an indentation in the abdominal walls was noticeable at the location of the cicatrix and a dragging sensation was complained of which caused a slight limp. The liver dullness also extended downward somewhat below its normal level. These symptoms were due to the fact that at the time the gall bladder was distended with pus it became adherent to the abdominal wall. After relief by operation the contraction of the organ had a tendency to draw the abdominal walls inward and displace the liver downward.

One year and seven months from the date of operation the patient asked to be relieved of the annoyance of the fistula. Believing that the existence of the fistula was due to an occluded cystic duct, I suggested total extirpation of the gall bladder to which the patient consented. The fistula was found surrounded by a dense mass of cicatricial tissue which was excised and removed with the gall bladder. A large mass of adherent omentum was ligated and

released. A forceps with narrow blades was clamped between the liver and gall bladder at a distance from the liver far enough to make it possible to ligate between the liver and forceps. The gall bladder is so intimately connected with the liver that the forceps of course held some of the coats of the gall bladder in its grasp and converted them into a sort of artificial mesentery. By ligating this mesentery in sections with cat gut and cutting between the ligatures and forceps each time, the possibility of hemorrhage was avoided. Having released the gall bladder in this way as far as the cystic duct, the duct was ligated with catgut in two places and severed between the ligatures and the gall bladder removed.

The portion of the duct removed was occluded, and in the fundus of the gall bladder was a pocket containing a stone three-fourths of an inch in diameter.

The wound was closed without drainage and healed by first intention. The patient has had no further trouble.

CASE II.

Mrs. Belle H., aged 41, a large, robust woman, mother of twelve children. The trouble of which she has complained for five years came on very suddenly in June, 1892, with pain at the pit of the stomach, radiating to the back and the right hypochondriac region, and was attended with vomiting. At this time she was living in Chicago, and was attended by a physician who pronounced the ailment bilious intermittent fever. The pain at this attack lasted about eight hours and left as suddenly at it came on. The attending physician said it was followed with inflammation of the stomach. After the attack she was very sore over the region of the stomach and gall bladder, and was confined to bed three weeks. Similar attacks followed at intervals of several months, becoming more and more frequent up to the date of my first seeing her, in April, 1896, nearly five years after the first attack. At this time I diagnosed cholelithiasis, and recommended an operation. I saw her after this in a number of attacks up to the date of December, 1896, at which time I operated. The attacks were always attended with intense pain and vomiting of bilious matter but without jaundice. Gall stones were never detected in the stools.

Operation, cholecystenterostomy with the Murphy button. The gall bladder was enlarged and its walls thickened. Fifty calculi were removed about the size of peas. The patient recovered rapidly from the shock of the operation, but was very refractory, getting out of bed the morning following the operation during the nurse's absence and drank a large quantity of water, obtained from an adjoining room. In spite of this, however, she made a rapid recovery; but owing to her indiscretion a small hernia developed at the site of the operation. The button was not recovered after a month's watching.

She was entirely cured of her gall bladder trouble and enjoyed good health for a year and nine months when she returned to be relieved of an immense lateral-ventral hernia, which developed at the seat of the operation.

Figs. 1 and 2, are photographs of the patient taken at this time and show a front and lateral view of the hernia.

The operation for the hernia was undertaken September 3d, 1898. By an elliptical incision the old cicatrix was removed and the sack opened. The contents of the sack consisted of the cæcum and entire ascending colon, a large mass of omentum and coils of small intestines. The breach in the abdominal wall was four inches in length and somewhat triangular in shape, the apex being toward the costal arch and its edges separated an inch to an inch and a half.

The omentum which was adherent at the margins of the opening was released partly by ligation and partly by the fingers. Great difficulty was experienced in replacing the viscera within the abdominal cavity, and retaining them there. It was accomplished however by the use of large gauze sponges.

No attempt was made to separate the ad-

herent peritoneum lining the sack. An incision into this peritoneum was made around the abdominal opening about an inch and a half from its margin. This portion was then stripped off around the opening and somewhat beyond its edges into the abdominal cavity. The peritoneal edges were then sewed together with continuous catgut.

Fig. 1. Mrs. Belle H. showing front view of hernia.

Fig. 2. Mrs. Belle H. showing lateral view of hernia.

The different muscular layers were approximated by interrupted chromacized catgut sutures; their aponeuroses by continuous suture of the same material. The whole was re-enforced by silk worm gut sutures which embraced all the tissues save the peritoneum.

Drainage of the pendulous sack was maintained for a few days with gauze.

The result was satisfactory as shown by Fig. 3. A photograph taken three months after operation.

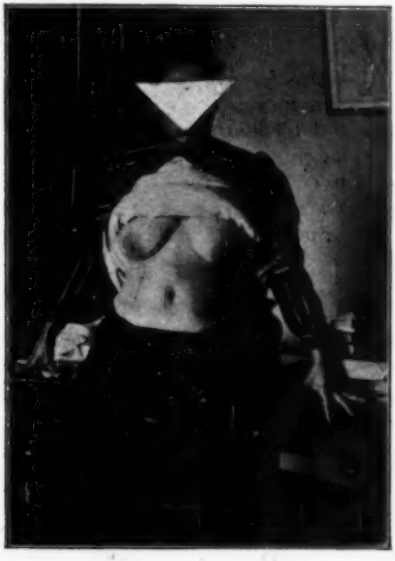

Fig. 3. Mrs. Belle H. Three months after operation for lateral ventral hernia.

In other cases similar to this I should not pursue this method exactly. The tension on the sutures was severe and I had the gravest fears that the vitality of the tissue they embraced would be so impared that the edges of the opening would separate and the hernia return.

I should adopt the suggestion of Dr. Albert Goldsphon, of Chicago, (Large

Ventral and Umbilical Herniæ in the Adult, with Three Cases of Radical Cure by an Improved Technique. American Gynæcological and Obstetrical Journal for September, 1897,) and pass double wire retention sutures beneath the peritoneum and muscular fascia emerging on the cutaneous surface several inches from the edges of the wound, the ends of which should be held by buttons of iodoform gauze or lead. The entire tension is thereby transferred to these sutures and the pressure placed at a point most suited to bear it, viz: a point remote from the edges of the wound where approximation and not tension is the thing desired.

This use by Dr. Goldspohn of the tension suture was applied in cases of umbilical and ventral herniæ, but it is applicable to lateral-ventral herniæ, for here the same principles obtain.

I should mention that an examination of the gall bladder region at the time of the operation for hernia showed a healthy condition of the parts. The button had passed away and the gall bladder had contracted down into a small inoffensive organ.

Case III.

Mrs. J. J., a farmer's wife of strong physique. Consulted me first in November, 1896. She gave a history of having suffered pain more or less severe in character for two years, located in the region of the stomach and gall bladder, and radiating to the umbilical region. The symptoms described did not seem typical of gall bladder trouble, and I thought it possible the difficulty was caused from indigestion, and prescribed the remedies usual for such trouble, and also washed out the stomach with a solution of warm boracic acid. For a time this treatment gave some relief, but the distressing symptoms soon returned with increased severity, and an exploratory operation was recommended. She was sent to the hospital and kept under observation for a week, during which time she was examined by a number of other physicians. All agreed that while the symptoms were obscure yet an exploratory operation was justifiable.

Operation, June 11th, 1897.

The usual incision for gall bladder operations was made and the gall bladder examined; but nothing could be detected through its walls indicating a pathological condition. However, it was deemed best to open the bladder and examine thoroughly for gall stones. This was done with negative results. The gall bladder was then approximated to the duodenum with a Murphy button. The pancreas and surrounding organs were examined, but nothing could be discovered to account for the symptoms complained of. The wound was closed in the usual way, viz: continuous catgut for the peritoneum and muscular fasciæ, re-enforced by interrupted silk worm gut sutures passing through all the tissues except the peritoneum; superficial cutaneous sutures of silk or horse hair.

The patient recovered rapidly and was free from abdominal pain for two or three months when the trouble again returned. Although a faithful watch was maintained for four months the button was not recovered.

I recommended the patient to seek the advice of some Chicago surgeon and she expressed a wish to go to Augustana Hospital, where I took her, and placed her under the care of Dr. A. J. Ochsner. Dr. Ochsner performed a laparotomy on her about four months from the date of her first operation. The Murphy button had released its hold upon the gall bladder and intestine but had migrated upward instead of downward, and had lodged in the duodenum near the pyloris. It was removed through an incision in the intestine. Nothing further was discovered to account for the patient's illness. She made a good recovery from the operation. So far as I know this is the only case in the history of the button where it took such an erratic course.

In my earliest work in this line I maintained that as the gall bladder was a useless and dangerous organ, the more thor-

oughly it was eradicated from the human economy the better it would be, and as the operation of cholecystenterostomy did this most effectually, it was the operation of choice. Some experiences, however, has changed my mind and I now only use the button in cases of permanent obstruction of the common duct. In justice to the button it must be said that it has done more than any other one thing to stimulate the study of gall bladder surgery in modern times, and its benefits in this direction to modern intestinal surgery are only excelled by the brilliant work of Dr. Nicholas Senn, who gave to the profession decalcified bone plates in 1887.

CASE IV.

Mrs. F. P., married, age 27. Menstruated at 17, subsequent menstruations painful and irregular. Married at 22; one year after had a miscarriage and was quite sick for three weeks. Three years later bore a child which is now (June, 1898) two years old. Had inflammation of the bowels three years ago and intermittent fever. Also had an attack of this character previous to marriage.

The present trouble began when patient was eleven years old with a sudden attack of pain in the abdomen along the border of the right costal arch, radiating to the back, right shoulder blade and back of neck. These attacks occurred at intervals of a few months to a few weeks, were usually associated with vomiting, but without marked jaundice. During attacks morphine was taken hypodermically in repeated doses of 1/6 grain. She has become almost an invalid and unable to perform much labor.

Physical examination reveals nothing except slight tenderness in right hypochondriac region.

Diagnosis: Cholelithiasis.

Operation July 12th, 1898.

An incision three inches long was made over region of gall bladder. Some adhesions were broken up with the fingers. Could detect no stones in the gall bladder or ducts by exploring with the finger. Gall bladder was contracted and coats greatly thickened. The cæcum was drawn up through the incision and the appendix inspected. The peritoneum about the cæcum was inflamed, the appendix rather long and club shaped. It was removed.

The gall bladder was stitched into the upper angle of the wound and opened. A small quantity of thick tarry like substance flowed out, but no stones were found. Drainage was maintained with a rubber tube.

During the first three days after the operation the dressings were more or less soiled with the tar-like substance after which normal bile flowed freely.

Convalescence was smooth. The patient left the hospital in four weeks, but drainage was kept up by means of a rubber catheter, the pointed end being passed into the gall bladder and the other end into a four ounce bottle which was held in position under a bandage. From two to three and a half ounces of normal bile would drain into the bottle every 24 hours. Drainage was maintained for three months as the patient seemed distressed if the tube was left out. At the end of this time it was removed; the fistula closed in a few days and the patient was comfortable for two weeks when the pain returned.

I then washed out the stomach with a solution of boracic acid in sterilized warm water. The contents of the stomach was very foul. This treatment given daily for two weeks stopped the pain which has not again returned.

The patient is now, nearly a year after the operation, in robust health, having gained 40 pounds in weight. The case was evidently one of chronic cholecystitis, and demonstrated the value of lavage in gall bladder cases of long standing where the stomach also sometimes becomes affected.

CASE V.

Mrs. W. W. T., widow, age 34. Her present trouble began 5 years previous to Aug. 11th, 1898, the time I first saw her. The first attack was sudden pain in the

abdomen at first not localized, finally settling over appendiceal region and along the right side. At this time the weight of the bed clothes could not be borne upon the parts. Was confined to bed three weeks.

Since then she has had attacks two or three times a year the pain being located in the back about the right shoulder blade and in the back of the neck. The pain usually, but not always, associated with vomiting and was followed by soreness in epigastric region for a few days.

She had chronic diarrhœa for four years previous to the beginning of this trouble. During this time she was a starch eater—a habit acquired by an abnormal craving which she had while pregnant with her first child. She would devour a half pound package at a time until finally starch was kept from the house and she was broken of the habit. As soon as she stopped eating starch she was cured of her diarrhœa.

In January, 1898, she had an attack of colic followed by jaundice which lasted a week. In August of the same year when I saw her she had suffered from a severe attack; had been confined in bed a week and had been jaundiced for three days. Physical examination of abdomen negative, except tenderness in right hypochondriac region.

In examining the pelvic organs there was found a lacerated perineum and cervix; a tender uterus in normal position and an enlarged and tender right ovary. For five years she had been treated for "bilious colic," "female weakness," and "neuralgia of the womb." Weight had decreased from 150 to 100 pounds.

Diagnosis. Cholelithiasis with impacted stone in the ductus choledochus.

She was given tonic treatment and hot baths for a week to prepare her for operation. By this time the jaundice had about disappeared. Three days later she had another attack of colic with vomiting and was taken to the hospital at once for operation.

Operation.—Cholecystomy, August 24, 1898.

The gall bladder was adherent to the duodenum. All surrounding tissues hyperæmic. Adhesions were tied off or broken up. A stone could be felt in the common duct under the duodenum opposite the head of the pancreas. The gall bladder was torn open in separating it from the duodenum. The abdominal wound was enlarged by an incision at right angle with the upper part dividing the rectus muscle. A stone could then be reached with the finger and was forced up into the cystic duct. In attempting to force it into the gall bladder the friable cystic duct was ruptured and the stone released. A second stone was delivered in the same way. The gall bladder was enlarged at the ruptured point and sewed to the peritoneum in the angle of the wound. A rubber tube was placed in the gall bladder and gauze was carried down to the point of rupture in the cystic duct in the peritoneal cavity. The rest of the wound was closed and healed by first intention. No bile ever drained through the gall bladder which was much contracted and coats thickened. A moderate amount of bile flowed out by way of the gauze drain for about two weeks; it then ceased and the fistula healed rapidly.

The patient has since had no return of this trouble; she has gained greatly in health and weight. The stones were spherical in shape and about 3/8 of an inch in diameter. They undoubtedly caused a periodical obstruction of the common duct by ball-valve action, a condition well portrayed by Dr. Christian Fenger.

These patients frequently have chills and their condition is often mistaken for malarial fever.

Case VI.

Mrs. L. A., age 64. I was called to see her first, April 27th, 1896, to treat her for what she termed a "bilious attack." The stomach was irritable, she had been vomiting some and had a dull pain about the stomach and liver region radiating downward on right side of abdomen and backward to kidney region.

She stated that she had attacks of this character at varying intervals for a year. The pain was not sharp and colicky, but was of a dull, heavy or boring character. Morphine was not required. She recovered from the accute attack but had an uncomfortable feeling about the liver and stomach most of the time. From this time on there seemed to be a gradual failing of health. The urine was frequently loaded with urates but free from blood or pus or other abnormalities, so calculus or other renal trouble was excluded.

After observing the case for some time I suggested the diagnosis of gall stones but it was such an atypical case that I had to confess a lack of confidence to some extent in this diagnosis.

The patient would not entertain the idea of an explanatory operation. I saw her more or less at this time for a month, but not again professionally for one year and nine months. In the mean time she had taken treatment from several physicians and in the fall of 1898 I learned that a tumor had developed in the abdomen in the right hypochondriac region and the diagnosis of cancer of the liver had been made.

I attended her again for two weeks previous to her death which occurred December 16th, 1898.

She had become intensely jaundiced and greatly emaciated and suffered great pain in the stomach and upper portion of the abdomen which was made bearable with codein. Food could be retained but a short time, as vomiting was frequent. A hard tumor could be felt extending from the border of the liver laterally to the median line and downward as far as the level of the umbilicus. A nodular mass several inches in width could be felt at the edge of, and protruding beyond, the right costal arch. After death this nodule could be distinctly outlined through the abdominal walls as the gall bladder full of stones.

At the post-mortem the gall bladder was first opened, two ounces of pus removed and twelve gall stones—two of which are of special interest on account of their great size. The weight of one (dried) is 195 grains; of the other 162 grains. The total weight of the 12 stones was 647 grains. In circumference the larger one measured $3\frac{3}{4}\times3\frac{5}{8}$ inches; the smaller $3\frac{1}{2}\times3\frac{5}{8}$ inches.

The tumor was a carcinoma somewhat larger than a cocoanut which undoubtedly originated in tissues near the liver. The tumor proper however had not invaded the liver, stomach, gall bladder or intestine, except by adhesions.

It is a well known fact that cancer is frequently associated with neglected cases of cholelithiasis. It is presumed that the irritation caused by gall stones is the most important factor in its etiology, yet it is very noticeable that the cancer in these cases seldom originates at the seat of greatest irritation as is the case in cancer of the lip or tongue, but at some point remote.

The explanation may be that the peritoneal and cellular tissue about the viscera are much more susceptible to irritation than the viscera themselves and suffers most from such troubles, and when once started in such loose tissue it merely follows a mechanical law, of progressing in the direction of least resistance.

Diseases of the gall tracts and of the appendix vermiformis are not on the increase; but, thanks to the tireless, noble workers in medicine and its allied sciences, our knowledge of these things is increasing at a rapid rate; and may the day come when our knowledge shall have become so exact and surgical technique so perfect that no man shall die of such diseases of these organs. Perhaps, old Nature, is slowly working out the problem of eliminating these rudimentary and useless appendages, and sometime in the distant future—farther on than the twentieth century—there will be evolved a perfect race, a race without gall bladder or appendix vermiformis.

Discussion.

Dr. Wilson, Cairo: After listening to this paper we are led to exclaim that man is wonderfully and fearfully made, and the good Lord understood his business when he made man. A hundred years ago there were some functions of the system that we did not understand. Ac-

cording to the theory of the paper, as we do not understand the function of the gall bladder, it is useless and has no function. Analogous to the gall bladder are the vesiculæ seminales. Should they be excised? The bladder is the true reservoir. Because we do not understand the function or the utility of the vermiform appendix, should it be excised, or declared a useless organ? The true functions of other organs may be explained to future generations, and we will find that God Almighty is about correct.

DR. ALLABEN (closing the discussion): I have nothing special to add except to make a reference to the appendix. I feel justified in saying that we have gone far enough in our investigations and scientific studies to conclude that the principles of evolution are upon solid ground, and in regard to the appendix we know enough to say that it is a rudimentary and useless organ without doubt.

DESIRABLE SANITARY MEASURES FOR SMALLER CITIES.*

BY LOUIS E. FISCHER.

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Only that is desirable which is applicable. As all sanitary measures that are applicable to larger cities are not to smaller cities we must distinguish between desirable sanitary measures for smaller and for larger cities.

Desirable sanitary measures for smaller cities, herein stated, will include those measures which will fall within the financial possibilities of the people and which will decrease the death rate, promote the health, and add to the comfort of mankind sufficiently to compensate many times over, in dull cold figures, for the cost of putting into effect the specific sanitary measures.

What has brought about the more recent agitation and adoption of sanitary measures for densely populated districts? The fact that it is now universally admitted that about 40 per cent of all deaths are due to diseases of bacterial origin such as consumption, pneumonia, diphtheria, cholera, typhoid fever, malarial fever, diarrheal diseases, measles, whooping cough, small pox and many others. Furthermore, and more properly from the fact that the deaths due to these zymotic diseases can be materially reduced by the adoption of proper sanitary measures. It is estimated that in the neighborhood of 400,000 deaths occur annually in the United States from these causes. There are over 50,000 of these due to typhoid fever alone. Scarcely a family that cannot name one or more of its members lost in morning of their lives by some form of zymotic disease. Medical men and sanitarians have demonstrated beyond a doubt that these diseases of pathogenic organism origin can be successfully combated. Was it not the system of sewage designed by Col. George Waring that made Memphis an inhabitable city? Was it not due to the removing of the filth, that served as a medium for the growth of these micro-organisms, that avoided the depopulation of New Orleans by pathogenic diseases? What then must we conclude in regard to this matter? That the people are awakening from their lethargy, and are now beginning to rebel against the drinking of sewage-polluted water, the breathing of air contaminated with zymotic disease germs, and the taking of food prepared with a questionable water in a foul atmosphere.

The purpose of sanitary measures is to avoid the transmission of these pathogenic bacteria from the sick to the well. This result can be best accomplished by, first: *removing the causes of contamination*, second: *by the supplying of pure water, food and air.*

The two great sources of nuisances in smaller cities having a population of eight or perhaps ten or more inhabitants to the acre, are privy vaults, including poorly constructed cess pools, and garbage deposits, including carcasses of dead animals such as rats, mice, even dogs, that so frequently adorn the alleys. Among the lesser evils might be stated deposits of horse manure on the thoroughfares, filthy street gutters and long standing water pools. Certainly no member of this medical fraternity doubts the appalling results of these disease breeding nuisances. Every

*Read before the Aesculapian Society of the Wabash Valley at Charleston, Ill., May 21, 1899.

day we see before our own eyes, possibly in our own homes, strong men and women stung by the fangs of this most aggressive foe, the bacteria of zymotic diseases, stricken with an illness that so frequently prove fatal, invariably creates anxiety, and much too frequently causes hardship, poverty, even starvation upon those dependent upon the victim as a wage earner. Strangely enough, had the victim who perhaps fell prey to the ptomain of anothers disease germ, been killed by his own carelessness in crossing a railroad track, or perhaps a street crossing, his survivors would have secured heavy damages; but where he dies of the ignorance, indifference or gross carelessness of his fellow citizens in not providing such sanitary measures as even swine practice, the thought of fixing even the cause of death to other than the "Will of God" is not even entertained.

Almost every city of over 5,000 inhabitants, well and good, provides fire protection, at a considerable expense, to fight the fire foe in his desire to destroy property. How many cities of this class provide even one-fourth such protection to fight or rather combat the ravages of pathogenic bacteria? Yet how much greater is the annual loss from the latter?

The idea of placing a money value upon a human life is frequently ridiculed. Yet in law $10,000 is frequently placed as the value of the life of a vigorous man or woman. As the world loses in each able bodied man the productive ability of that man, so it loses the financial value of the producing forces of that human being. We are a small part of this great commonwealth and each loss to the whole is a small part of that loss to every individual. This fact is clearly demonstrated in the case of life insurance. If the victim dies at an early age with a life insurance policy in his possession, the individual citizens pay their part. Insurance rates are not based on vital statistics as they should be, but as they actually exist. Moreover what family would not rather have ten barns burn down than lose the wage earner of the family? In the face of these facts cannot then the value of a human life during the productive age be placed at $5,000. Therefore it is not inconsistent to demand the same protection against such losses as against the loss of personal property.

Nature provided sanitary measures for the primitive man and the lower animal in their undomesticated state, in that the refuse from the animal kingdom is food for the vegetable kingdom, where the ratio of the former to the latter is not too great. Clearly then where human beings have congregated to such an extent that the vegetable kingdom can no longer consume, as it were, the refuse matter, man himself must provide means for its removal from the immediate vicinity in which he lives and not leave it as a medium to further the growth of zymotic disease germs.

The first and most important sanitary measure hence is, to provide an adequate means for carrying away the organic wastes from the city, that is, construct a system of sewage. The removing of these organic wastes may be executed in a meagre way by a pail system, dry closet system and perhaps a perfectly constructed cess pool system, yet the most economical, most effective and most generally adopted method is with the agency of a water carriage sewer system. My remarks here will hence be confined to water carriage sewers.

Sewers in general are divided into two classes, viz.: combined and separate sewers. Combined sewers are those in which one conduit carries all the sanitary wastes and storm water. Separate sewers are those in which the sanitary wastes are carried away in a separate conduit from the storm water. It can be readily seen that the sizes of the conduits for separate sanitary sewers are small as compared to the conduit of combined sewers necessary to provide for the average maximum rainfall which is many times in excess of the average precipitation. The fact that in cities of the class of which I speak, the storm water may be carried away in the open channels provided by nature to good advantage (for the property

is not so valuable but that these can be spared until the city grows to such an extent that it will not create a burden to build storm sewers) and also from the fact that the expense of separate sanitary sewers falls within the range of every little hamlet makes the separate sanitary sewer very applicable, hence desirable for smaller cities. The fact that large cities are so built up that open channels could not exist, and also from the fact that combined sewers, though a burden on rural cities, will not create a burden on metropolitan cities, makes the combined sewer the desirable sewer for large cities. Herein lies the principal difference between desirable sanitary measures for smaller and larger cities. Another advantage in cost of separate sewers over combined sewers is that great care and expense must be put in large drains in order to admit of their use for conveying organic wastes, while if a small sanitary sewer is used to convey these wastes a cheaply constructed drain will effectually carry away the storm water. We cannot overlook the fact that many of the inhabitants of smaller cities are in meagre financial circumstances and we must avoid as far as possible the burdening of such people with extensive improvements. The sanitary sewer, however, which costs approximately 50 cents a linear foot, amounting to about $5.00 per capita, cannot be called a burden, for any man that can own property can meet this small expense, especially as the community will be compensated many times over for the expenditure. If he cannot meet the expense his only salvation is to cease to be a property holder, for he is a detriment to his community.

In connection with a sewerage system, proper plumbing regulations should be adopted to insure against ill effects from this source. The use of privy vaults should be discontinued as the great amount of illness produced from this source is seldom appreciated. What becomes of the wastes when we deposit it in a privy vault? The liquid matter percolates into the soil polluting it with the germ or ptomain of the germs. The heavy matter is decomposed by the organism, *frequently of a pathogenic specie, giving off noxious gases that are not only* disagreeable, but are polluted with the very essence of the diseases previously stated. The use of well water in close proximity with a privy vault is beyond the necessity of discussion. Each year our attention is called to instances where whole families fall victims to a well polluted by a near by vault. Again the public refers to it as "Will of God," but I believe you will agree with me in calling it criminal negligence on the part of the responsible party.

Unfortunately the kitchen wastes, commonly called garbage, is of such a heavy nature that it may not be admitted into sewers. For this reason it becomes necessary during the hot months to remove this garbage in properly constructed wagons to a place where its decomposition will produce no ill effects. For the convenience of the scavenger this garbage should be deposited in a tight covered box in the rear of the lot. The scavenger should empty these receptacles frequently enough to avoid putrefication in them. The scavenger should also remove all carcasses, manure, etc., from the streets and alleys as soon after the deposition of the same as possible. The cost of such scavenger work should not be more than 40 or 50 cents per inhabitant per season.

Having accomplished the removal of all organic wastes the next very important sanitary measure is to supply the city with an uncontaminated water fit for drinking purposes. We may contend that having removed the sources of contamination, the well water should be free from further pollution. As is generally the case at the time of the introduction of sewerage, unless cities built up very rapidly, the surface soil has been receiving for a great many years the refuse of human beings and is therefore polluted to such an extent that it will require a long period before surface *wells* (which receives the water passing through this polluted soil) becomes fit for drinking purposes. Moreover, statistics show that cities having a public

water supply have a lower death rate than those using surface wells. But even if we do not use the well water of cities it is potent that we remove the organic wastes to avoid soil and atmosphere pollution.

Deep well water where it can be had in sufficient abundance without objectionable medicinal properties, makes a very desirable public supply. However, it is seldom that an adequate supply can be obtained for a large consumption. Where river or creek waters are supplied for public use (where there is any possibility of sewage contamination from cities further up the stream) should be filtered before being pumped to the city.

Two methods of filtration may be used, viz., mechanical or rapid filtration, in which a chemical, usually the sulphate of aluminum is used to form a precipate of aluminum hydroxide before passing through a coarse sand filter. Natural or slow filtration, in which the water passes slowly through a prepared filter bed without the use of a chemical. Either of these methods if properly used will give excellent results, removing from 96 to 100 per cent of the bacteria in the water. The general use of pure water for cooking, bathing and washing purposes should be encouraged by municipalities.

Where both sides of the streets are built up with high buildings which do not permit of the sun shining on the streets but a few hours each day, it is very desirable that they be paved with a smooth hard surface that will admit of frequent cleaning with little expense. Dirt streets that must be continually sprinkled to avoid making them unbearable from dust accumulations that cannot have the horse dripping removed on account of the nature of the surface, are not only disagreeable as a thoroughfare but soon become a mass of micro-organisms giving off a stench that fills the nostrils of every individual passing over them. Such a state of affairs is unsanitary, not conducive to good health.

These four public improvements, viz., sewerage, including cellar drainage, garbage disposal, pure water supplied by a public water works system, and paved streets on the business thoroughfares, should be found in every city in which the population is eight or more per acre.

You may ask for some evidence of good results from these measures? Unfortunately the statistics for smaller cities are rather meagre. But let us look at the fact that Berlin with every desirable sanitary measure has a death rate from typhoid fever one-tenth of that of Chicago. The principal cause of Chicago's heavy death rate from zymotic diseases is its polluted water supply and poor sewerage and drainage. We may look with satisfaction to the fact that millions of dollars are being spent to rid Chicago of its organic wastes and supply it with an unpolluted water. Statistics of Eastern cities show a reduction in the dath rate of from 40 to 50, and even higher per cent upon the introduction of proper sanitation.

Let us lay aside for a moment, if you please, the sanitary aspect of the measures herein enumerated. Let us look at it from an æsthetic standpoint alone. Are interior lavatories, made possible by sewerage, water taps, clean streets and pavements not worth having for their convenience alone? Surely no man once having experienced the benefits and conveniences of these things would turn back to back yard privy vaults, a windlass well, streets alive with the venom of decaying organic matter and mud road, for five times the cost of these improvements.

With the introduction of sewerage systems there is one point we may not overlook. That is, the discharging the organic wastes of a city on the hand of a sister city down the stream. The state should never permit such actions. Sewage, unless it is discharged into a stream of sufficient size to make it harmless by being sufficiently diluted, should be purified. There are several methods of accomplishing this, viz., by broad irrigation, chemical precipitation, intermittent downward filtration, and by a septic tank disposal. As the last mentioned is by far the most economical and gives excellent results it is

best adapted to smaller cities. Describing briefly the septic tank, it is an air tight and light tight structure, made so to create the conditions for the growth of the ærobic forms of bacteria. The sewage enters this tank, is acted on by the ærobic forms of bacteria which decompose the organic matter and by the processes of nitrification produce the nitrates and nitrites forming mineral compound which are dissolved by the liquid matter and carried away. The result of this action is that after the sewage passes under several boffle boards and finally discharges over a weir in a thin sheet it is a clear liquid showing little resemblance to the sewage entering the tank. All that remains in the tank is a harmless sludge devoid of almost all organic matter. This method of sewage disposal, which is receiving much attention in the engineering world, was introduced to Illinois by Professor Talbot of the University of Illinois. The State owes much to Prof. Talbot, in solving this great problem of sewage disposal so practically and efficiently.

What should be the aspect of the State towards the adoption of proper sanitary measures by cities? Does it not seem as though such matters that are of such vital importance to the general public should be regulated by sound state legislation? Man in his eagerness for the Almighty Dollar frequently forgets his higher sentiment and his duty toward his fellow countrymen. It might be well to remind him of these by some legislation.

MEDICAL ORGANIZATION.

BY JAMES TWEDDALE, M. D., WASHBURN, ILL.

(President's Address, North Central Illinois Medical Association, Mendota, Dec. 5-6, 1899.)

Organization is the fad of the day. Every thinkable division and sub-division of intellectual or mechanical labor has its society. If, by chance, anything has escaped, future investigation will reveal it, and its proper classification, with its attendant society is only a matter of time. Medical and surgical specialists for their convenience have mapped out the human body, externally and internally, into such natural or unnatural divisions, as suits their convenience; the only part of the human body I can think of not yet adopted as a specialty being the "Umbilicus," but we can calmly await the day when upon this modest, retiring anatomical foundation will be built the Esculapian Navel society, to fill a long-felt want.

It is far from the reader's intention to cast ridicule upon the specialists. The rapid advancement of medical science and art would have been impossible without these ardent workers in special fields. No human mind can grasp medical science as a whole. The index alone of its literature fills many volumes, therefore divisions and sub-divisions are absolutely necessary. But all this segregation, while beneficial in acquiring knowledge and promoting investigation, is in a measure detrimental to the unification of the whole profession, a unification absolutely necessary to accomplish the great things demanded by the advancing spirit of the times. And here it might be well to say, that, if medical societies exist for the sole purpose of benefiting their members, without regard to the welfare of their fellow citizens, they had better never been born. The medical profession apparently grows stronger by undermining the foundation on which it seems to rest; its noble aim being the prevention as well as the cure of disease.

The present organization of the medical profession, as far as its relation to the treatment of disease is concerned, or rather its scientific aspect, seems susceptible of very little improvement. However, there are many other subjects, some of a political nature, which demand more attention than an occasional resolution in the proceedings of the district societies. State and national departments of health, to form integral parts of the government and to be paid as other departments, and to which all matters relating to the health of the people and the qualifications of medical men might safely be left, are some of these. The government of public hospitals, na-

tional and state quarantine, vaccination, vivisection, the commitment and care of the insane, and all sanitary matters relating to schools and prisons, and the pollution of our rivers and streams are questions for the decision of such departments. A united profession, upon a basis of common interests, would have a powerful influence upon legislation. If a union could be formed upon those things in which we agree, the things in which we differ would assume much smaller proportions. It seems to your reader that as the officials of the State Board who are appointed by the Governor are of different schools, and appear to work harmoniously for the good of the profession and the benefit of the commonwealth, that it would be possible to organize the whole medical profession into an immense association for the very political purpose for which the State Society exists. Not to abolish State Boards by any means, but to form, strengthen, and sustain such boards in every State in the union, and also at the central government.

The opposition to the present State law is furious against those clauses which gives the board power to examine all persons who purpose practicing in this State, and to revoke licenses for un-professional conduct. The motive behind this onslaught would appear a great and reasonable fear that the students of some of the colleges, which these worthy gentlemen represent, might, in undue proportion fail, to the great detriment of their Alma-Mater. Then there are the bottle-fed doctors, who have no Alma-Mater, and the quacks, whose Alma-Mater have disowned them. These latter persons are afraid of the revoking clause.

If any one wants to teach a common school, a diploma from Yale or Harvard would avail nothing; he must pass an examination. In dentistry the same. The legislature of this State passed a law defining the qualifications of lawyers. The Supreme Court decided that the legislative department could not interfere with the judicial, and every law student must pass an examination, whether a graduate or not. If a man wishes to hold a position under the government he must pass the civil service examination.

It has been observed that the opponents of reformatory measures are far more apt to be vigilant and active than are the reformers themselves. Dr. A. C. Corr, of Carlinville, in the correspondence department of the *Illinois Medical Journal*, of November, 1899, writes, "The State Board of Health as an adjunct in the machinery of the State Medical Society deserves a great deal of consideration, and most assuredly in its present condition and mode of management needs to be revolutionized." It may seem presumptuous to criticise an article of Dr. Corr, but I dislike to think of the State board as an adjunct of a medical society. Webster defines "adjunct" as something joined to or added to another thing, but not necessarily a part of it. We are endeavoring to make the State Board an integral part of our State government, of which it now is only an adjunct. It would be better to consider the societies of all schools as adjuncts of the State Board.

Again in the same article Dr. Corr says: "Suppose with this unphilosophical machine you allow all its members, with the secretary, to be non-affiliating with the State Society, I ask how can you expect to protect the interests of the health and life of the citizens you have, so sacredly, in your keeping?" Just so; but suppose you had an united society instead of three, a society which would ignore all discordant theories of principles and practice, and devote its whole effort to the political side of medicine.

Dr. Carl Black, of Jacksonville, in the same journal says: "There is no way in which our medical organization can do a greater amount of good than entering practical politics to the degree of controlling all medical appointments." Politicians respect nothing but political force. The politicians consider the medical profession as an army divided into warring camps, not liable to fight a common enemy while squabbling among themselves. While writ-

ing this article, I see that men eminent in the profession, are furnishing ammunition to the daily press to fire at the State Board, and the *quacks* have joined in with a hue and cry of being bled in the pocket to secure immunity from prosecution. Poor State Board, the pet organization of the medical profession, held up as a model by other State societies and the very abomination of desolation to the quacks! Now it is being ground between the upper millstone, the quack and the nether millstone, its friends. It would be better had those critical thoughts remained in a state of innocuous desuetude among the cerebral convolutions of the very active brains of those eminent Chicago professors, or had appeared in thoughtful articles in the medical press. The State Board should be the rallying point of the whole profession; around it centers all the political power the profession has or may expect to have. It should be reformed and reformed until it meets the expectations of the people and the profession. When the medical men and women of this great country form themselves into a solid organization with delegated authority we can look hopefully forward to that happy time when medical legislation will be something more than a farce. The 120,000 doctors in the United States could probably influence from one-half to one million votes; that would be something the politicians would respect. How to accomplish this union is a question that must be left to abler minds than mine. If we are to achieve anything worthy of the profession it must be done with one great army commanded and fitted up in a modern way. The bushwhacking style has gone out. This is the day of rapid-firing guns and smokeless powder, and it will not do to envelope ourselves in the smoke of old-fashioned weapons, and imagine we have won a victory, only to find after the field is clear that the enemy still holds the fort. If we mobilize our forces, modernize our weapons, place a general in command, and take the field, victory is ours!

There are two ways of organization which present themselves to my mind. One, for every society of legal practitioners to send delegates to a convention or congress, to be called, if you please, "The Medical Council." Or, by commencing at the bottom, organize a council in every county and form state councils by delegates. It is not my aim to attempt anything more than suggestions. Much labor and thought must be expended before a task of this magnitude could be accomplished. If medical science could discover an antidote to political corruption, the moral atmosphere would at once become clear and we could see our way without difficulty. Our legislative machinery is like a "slot machine:" you must drop in the proper coin before the law will grind out; or like a combination lock: you purchase a chart of directions and turn the handle to the right and left to the prescribed figures on the dial (generally pretty high figures), and when you expect the bolt to slide you find the combination has been changed and it is necessary to purchase another set of directions and begin again.

O! that the "sun" of political righteousness might arise and shed its rays upon the discordant elements of the medical profession, expose the dark byways of quackery, dispel the mists of superstition that cloud the minds of the laity, and bring on that perfect day when science and reason shall reign supreme!

BOOK NOTES.

Transactions of the Indiana State Medical Society 1899 Fiftieth Annual Session held in Indianapolis, June 1st and 2d. Publication Committee, A. W. Brayton, Indianapolis, Chairman.

For several reasons it will appear that a review of the annual proceedings of our nearest neighboring state will be of interest at this time. The volume before us is well printed and bound, containing with its double lists of members 552 pages, slightly longer than used in issuing the Transactions of Illinois, in reporting the Galesburg meeting. However, when one of the lists of members is counted out it will be seen that the Illinois volume is

slightly larger. The volume is fittingly embellished with half tones of the four surviving members who attended the first meeting in 1849. These venerable patres æsculapii took part in the exercises of the jubilee meeting unhampered by the five minute rule and gave noteworthy reminiscences of their early days and struggles. Thirty-eight papers are printed. The paper on Cholelithiasis by Dr. E. C. Davidson, of Lafayette, appropriately mentions the historic cholecystotomy, of Bobbs, of Indianapolis, in 1867.

A. W. Brayton in discussing the parasites of malaria, makes the significant and important statement that there should be a bacteriological station supported by the public in every county seat. The fiftieth annual session was attended by about 450 physicians, and was certainly an enjoyable occasion. It is to be hoped that Illinois will have a golden jubilee equally successful, and well attended.

Some other features of the Indiana Society interest us because of the attitude of its would be official organ, the Indiana Medical Journal, towards the Illinois Medical Journal, the official organ of our Society. Dr. Brayton, chairman of the Publication Committee, and editor of the Indiana Journal, in his August issue saw fit to insert his editorial probe into our infant enterprise. With vigorous pectoral percussions he declared that Indianians "would never consent to the publication of a monthly journal of the Society in place of the annual book of proceedings." In view of this statement, what was our surprise to find on page 436, that at this meeting Vice President Keiper, of the Indiana Society, brought up the matter of changing from the bound volume to the monthly journal form, stating his belief that "the growth of the Society might be very materially increased thereby." Is it possible that some vested interests were endangered by Dr. Keiper's motion, and that Editor Brayton was endeavoring in his August issue to belabor Indiana over the shoulders of Illinois? Did Dr. Keiper's move have anything to do with his transfer from the second office in the gift of the Society to a place on the obscure committee of Ethics? Is the Indiana Medical Journal "by tacit consent and nearly universal subscription" so nearly the organ of the Society that it finds it necessary to smother the idea of further growth of this great Society, even if it can be done by the journal method? This is for Indianians of course to decide, but in the meantime Brother Brayton will take notice that Illinois has entered the lists and from present indications the hoosiers will have to look to their laurels. Already since the Illinois Journal was established there has been a large per centage of increase and at the present rate it will not be long until we will have more than the 1,535 members of which Indiana boasts.

One item more in Indiana's organization. We find the county organization idea carried to the extreme in some cases as witness La Porte County, with two good sized cities, has a society of seven members, four of them officers, and meets quarterly or on call. Orleans County Society has six members and six officers. Perry County Society has four members, one from Spencer County, and four officers. Washington County Society has two officers and two members. Franklin County has one member who has elected himself secretary. Why not president? The post office of this officer is not given. Ripley County has one member who has not decorated himself with an official title.

From these examples it would appear that the interests of the practitioners and medical science would be better conserved in many parts of the State by a few active district societies, such as exist on this side of the banks of the Wabash. G. N. K.

WARLIKE PHYSICIANS.—The Chicago Rough Riders, an independent cavalry regiment, have adopted a constitution framed after the army code and elected civic and military officers. Dr. Gustavus Blech is Colonel; Dr. J. B. Weintraub, Major and Surgeon. Drills will be held weekly at 1450 Michigan avenue.

The Illinois Medical Journal

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Committee on Publication:
E. W. WEIS, M. D., Chairman, Ottawa.
H. N. MOYER, M. D., Chicago.
G. N. KREIDER, M. D., Springfield.

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ATTENTION!

Information is desired from the officers of all local societies in the State to furnish the editor with the names and residences of the officers, place and date of meetings of their respective society. It is earnestly requested that such information be sent in at the earliest possible moment.

CHICAGO DRAINAGE CANAL.

At the last meeting of the Physician's Club in Chicago, the drainage canal was the topic under discussion. Mr. Randolph gave a large number of steriopticon views illustrating the progress of the work and some of the difficulties encountered in its construction. His views showed that the work is one of great magnitude and one from which the score of difficulties accomplished must prove a credit to the trustees of the drainage district. Mr. Cooley, who is largely responsible for the drainage canal, having been one of its earliest advocates and the first engineer of the board that planned its construction, was present. He took an enthusiastic view of the importance of it as a water-way connecting the great lakes with the Gulf of Mexico.

Dr. Reynolds, the Health Commissioner of Chicago, discussed the value of the canal from a sanitary standpoint and showed how it would make the water supply of Chicago purer by keeping the sewage out of the lake. He referred to the position taken by Dr. Rauch regarding river pollution, stating that this immense amount of sewage would purify itself long before it reached Peoria. Incidentally, he spoke of the immense amount of sewage which now flows into the various rivers from towns along their banks. A careful study of the conditions which now obtain cannot fail to convince one that after the water is turned into the canal there will be a marked improvement; not only will the water of the canal and these various streams be diluted by a large mass of fresh water, but the amount of sewage in the streams will not be materially increased. The pumps at Bridgeport now lift many tons of solid matter into the old canal every day, which, in the most concentrated form is sent on its way down these streams. The opening of the drainage canal must improve present conditions, but this does not show that the drainage canal is a success from a sanitary standpoint. The emptying of sewage of cities and large towns into the streams, is, at the best, a filthy and unsatisfactory method of sewage disposal, and one which is largely condemned by leading sanitarians. The people of Europe are earnestly striving to prevent pollution of streams and this year, Paris celebrated the opening of its last intercepting sewer by which all of its sewage is diverted from the Seine.

There can be no question that Chicago is sadly in need of the relief which will be obtained by opening the drainage canal, as the water supply is polluted, a large number of deaths occurring annually from this cause. Those who oppose the opening of

the canal advocate a most short-sighted policy in the fact that it can have no other effect than to improve present conditions. After the canal is opened and Chicago has had time to recuperate from the financial strain incident to its construction, then it should take up at its leisure the question of proper sewage disposal. This will consist of the adoption of some method of precipitation, pumping upon land or bacterial treatment, all of which methods are in successful use in different parts of the world. This should only be required when the State enters upon the purification of its waters. Chicago should not be asked to change its system until other towns and cities are compelled to remove their sewage from waterways. It is true that the water has not yet been turned into the canal, but the drainage channel is *fait accompli* and it should be so treated. M.

MIGRATORY MEDICOS.

For several months the Journal has been publishing lists of the changes of address of physicians practicing in Illinois, or going from or coming to the State. These tables were furnished by the Secretary of the State Board of Health, but supplemented by information received by the editors in their unceasing efforts to unite the members of the profession into a working body. These lists have been very interesting, largely read and their number has been a source of astonishment to us and all our readers. Undoubtedly many changes occur which do not come to our notice as there is no means under present laws of getting accurate information. The only country which keeps an accurate record of the movements of its medical men is Germany. This systematic nation with its fifty million inhabitants reports each month any change of the members of its medical men to a central body, which reports in the official organ of the State. By comparing the German official publication with our semi-official list for Illinois it appears that more changes occur monthly in our State with 10,000 practitioners than occur in the entire German empire, with about 24,000 practitioners.

Surely this migratory habit of our colleagues deserves some consideration. We can only hope that by publishing and calling attention to this excessive mobility a better condition of affairs will result. It appears that in many cases no sooner do physicians locate than they arrange to go somewhere else and thus consume their substance and destroy their peace of mind by traveling over the country. They never get the tree of science planted deep enough to gain a firm hold and periodically they expose its tender roots to the blasts of winter or the heat of summer and soon it has lost all ability to grow.

It has been truly said that a practitioner is justified in making only two locations. First if necessary because of poverty or lack of experience he should locate in a small place where he will usually find ample opportunity for hard work, and his merits will soon become known. Under these circumstances he will also have opportunity to take his measure and if larger than the community, make preparation to move to a place of greater usefulness. Happy is the man who takes a proper estimate of himself and makes the proper move. Unhappy is the man who overestimates his ability and ranks himself in the hundred thousand class when he really belongs in the one or five thousand class. That man's move usually means a series of moves each more disastrous than the other. The ancient legend of the rolling stone and the moss should ever be borne in mind by the practitioner of medicine. K.

County and District Societies.

VERMILION COUNTY MEDICAL ASSOCIATION.

President, W. A. Cochran.
Vice President, T. E. Walton.
Secretary and Treasurer, E. E. Clark.

WARREN COUNTY MEDICAL SOCIETY.

President, E. J. Blair, Monmouth.
Secretary, A. G. Patton, Monmouth.
Treasurer, A. R. Nichol, Monmouth.
Next meeting May 4, 1900.

KANKAKEE COUNTY MEDICAL SOCIETY.

President, Chas. True, Kankakee.
Vice-President, Preston Stebbing, N. Kankakee.
Secretary and Treasurer, George H. Lee, Kankakee.
Meetings held monthly.

At the regular meeting of the McLean County Medical Society the following papers were presented: "Report of Cases," Dr. J. L. Yolton, D. H. Nusbaum; "Inflammation," Dr. Mullen; "Arthritis Deformed," Dr. E. S. Reedy.

The Clay County Medical Society met in Flora Nov. 7th, with twenty-three physicians in attendance. A fee bill was agreed upon and adopted. Papers were read by Drs. Thompson, Parks and Fairchild, which was followed by discussion. An adjourned meeting will be held here in January.

The Decatur Medical Society was organized December 21 with thirty-six members and the following officers:

President, W. J. Chenoweth.
Vice-President, J. N. Randall.
Secretary, W .C. Wood.
Metings on the fourth Thursday of each month.

The members of the Clinton County Medical Society assembled in Breese Nov. 7th, and held an interesting meeting. Dr. W. P. Gordon, of Carlyle, presided and Dr. M. Broening, of the same city, officiated as secretary. An excellent paper on the treatment of consumption was presented by Dr. W. T. Gaffner, of Trenton. The subject was discussed at length by those present. Dr. Broening, of Carlyle, talked interestingly on "Suppuration." An animated discussion in relation to the treatment of typhoid fever was commenced by Dr. Morony, of Breese, and all of the medicos participated. One new member, Dr. G. Y. Hord, of Keyesport, was admitted. After the meeting a banquet was served at the Hotel Commercial.

The North Central Medical Association convened at ten o'clock A. M. December 5th, in the city of Mendota, for a two days' session. This was perhaps one of the best attended meetings in the history of this Society. As this association takes in so many counties, it is to the credit of those members living at great distances that they attended. The scientific part of the program could not be excelled. The discussions were earnest and showed a wide range of information and the social features being in the hands of that veteran of hospitality, Dr. E. P. Cook, Sr., no word too much in praise could be said. The city of Mendota with its usual openhanded hospitality welcomed the visitors, making each and every one feel at home.

President Dr. Jas. Tweddale in the chair.

The first order of business was the necrology report. Dr. James H. Braffet, who was born in Florida, Orange County, N. Y., October 16th, 1834, died in Paw Paw, July 16th, 1899. He came to Illinois and located in E. Paw Paw in 1855. He was elected a member of this society in 1878, and of the Illinois State Medical Society in 1879.

Dr. C. W. Mackintosh was born at Bethel, Vermont, graduated in 1890, and practiced at Verona, Galesburg to 1896. He died in Northfield, Vermont, in 1899. Resolutions of respect were carried by a rising vote.

The Treasurer's report showed a cash balance on hand of $235.57.

Dr. C. C. Hunt, Dixon, Ill., presented the address in practical medicine, "The General Practitioner as a Gynecologist." The doctor argued that the day of the specialist is fading away and that every practitioner ought to qualify himself to be able to diagnose and perform such operations as are now turned into the hands of the specialist. With our present knowledge of asepsis and pathogenic bacteria the fear of infection has, in a measure, been lost. Discussed by Dr. J. A. Freeman, Millington, who condemned rapid operations for record only. Dr. O. B. Will, Peoria, spoke on the question of Prophylaxis, by giving more attention to cases after labor. General practitioners should examine cases one month after labor to see that all organs are normal. Dr. J. P. Lytle, Princeton, urged that no one should venture beyond his ability.

"Clinical Notes with Demonstrations of Pathological Specimens," by Dr. E. P. Cook, Jr., Chicago, exhibited a horse shoe kidney taken from a man 73 years of age, who died of lobar pneumonia. Weight 350 grams, normal excepting one retention cyst. Also exhibited an enormously enlarged prostate with hydro-ureter and nephrosis. This case also had mitral stenosis, ulcero-vegetative endocarditis. Aet. 60. Cystic degeneration, two cases, conglommeration of cysts, size split pea to walnut. The interesting feature of this case was that the patient was only sick one week prior to death. There was some dyspnœa, no edema, epilepti-form convulsions and sudden death in one hour after. Uremia, specific gravity 1010 and trace of albumen. Microscopical examination before death negative, after death hyaline casts. Aet. 55. Liver also showed extensive cystic degeneration. Pulmonary embolism. Patient complained of pain in precordia followed by dyspnœa and lividity 7th day after labor of the thirteenth child; all organs normal. Discussed by E. W. Weis, Ottawa; J. A. Freeman, Millington and Watts, M. D., of Triumph.

"Tuberculosis," by C. A. Palmer, M. D., Princeton. "Pulmonary Tuberculosis," by T. H. Stetler, M. D., Paw Paw. These two papers were jointly discussed by M. E. Buellesfield, M. D., Troy Grove, and J. P. Lytle, M. D., Princeton. Dr. J. A. Freeman stated that he had excellent results from Kleb's Tuberculocidin. J. J. Hahnenore, M. D., Maldan, Ill., and J. W. Pettit, M. D., of Ottawa, urged affiliation with the Chicago Society for the Prevention of Tuberculosis, and also C. D. Thomas, M. D., of Peoria. Discussion closed by essayists.

The address in surgery, subject, "The Significance of Eye Symptoms in Brain Surgery," by W. H. Wilder, M. D., of Chicago. Discussed by Dr. J. W. Pettit, Ottawa; Dr. Roy Streator, Dr. C. D. Thompson, Peoria; and Dr. Hugh T. Patrick, Chicago.

Dr. S. O. Hendrick, Henry, Ill., read a very entertaining paper on "Medical Etiquette."

In the evening of the first day an elegant banquet was tendered the members by the local profession of the city. Dr. E. P. Cook, Sr., being the toastmaster, it is needless to state that he kept the ball rolling fast and furiously.

At eight o'clock the President, after various addresses of welcome and responses, delivered his address on the subject of "Medical Organization," which appears in full in these columns, after which Dr. Hugh T. Patrick, Chicago, read the general address on the subject "How Not to be Nervous." This paper was a masterpiece and was one easily comprehended by the large number of the laity present.

The address in state medicine, subject, "Heredity," by John Ross, M. D., Pontiac, Ill., the abstract of which will appear later.

"Wounds and Injures of the Abdomen," by Dr. A. B. Middleton, of Pontiac. No discussion. "Four Cases of Appendicitis with some of the Lessons that they Teach," by Dr. J. F. Percy, of Galesburg. This paper was very instructive and was discussed by Drs. E. P. Cook, P. M. Burke, T. H. Stetler and O. B. Will. The follow-

ing were elected to membership: Dr. M. E. Buellesfeld, Troy Grove; Dr. O. J. Flint, Princeton; Dr. J. J. Hanenore, Malden; Dr. J. A. Kleinsmid, Troy Grove; Dr. F. H. Lord, Plano; Dr. H. T. Patrick, Chicago; Dr. V. A. Peterson, Somonauk; Dr. W. A. Pike, Ottawa; Dr. Wm. Schoenneshoefer, Lostant; Dr. E. L. Watts, Triumph; Dr. G. J. Wormley, Sandwich and Dr. H. A. Zinser, Roanoke.

Moved and carried that $50 be paid to the State Medical Society Committee on Legislation. Moved and carried that Dr. J. O. Stout, of Ottawa, be made a permanent member of the Association. Committee on Nomination reported officers for the ensuing year as follows: President Dr. P. M. Burke, LaSalle; Vice President Dr. F. C. Robinson, Wyanet; Secretary and Treasurer, Dr. G. A. Dicus, Streator; Assistant Secretary, Dr. Roy Sexton, Streator.

Before adjourning, the Society by a rising vote passed a resolution of thanks and appreciation for the outgoing secretary, Dr. Wm. O. Ensign. It is to be regretted most sincerely that Dr. Ensign's health does not allow him to continue in that office, which he has occupied consecutively fourteen years. The growth of this medical society attests the heroic work done by Dr. Ensign and every member present felt a pang of regret when the doctor insisted that a younger and more active man should be elected.

The following members were in attendance: T. W. Gillespie, Lostant; E. T. Goble, Earlville; R. E. Gordon, El Paso; S. O. Hendrick, Henry; J. R. Hoffman, Chicago; W. E. Howard, Ohio; D. W. Jump, Plainfield; J. P. Lytle, Princeton; W. C. Mason, Walnut; A. B. Middleton, Pontiac; C. E. Orelups, Streator; C. A. Palmer, Princeton; E. E. Perisho, Ancona; J. F. Percy, Galesburg; J. W. Pettit, Ottawa; N. F. Felker, Amboy; J. A. Freeman, Millington; F. A. Turner, Sandwich; Jas. Tweddale, Washburn; E. W. Watts, Ottawa; F. C. Robinson, Wyanet; E. E. Rohrabaugh, Chicago; John Ross, Pontiac; Peter Schmitz, Leonore; Roy Sexton, Streator; T. H. Stetler, Paw Paw; C. D. Thomas, Peoria; E. P. Cook, Mendota; C. E. Cook, Mendota; J. C. Corbus, Mendota; G. A. Dicus, Streator; J. F. Dicus, Streator; J. W. Edwards, Mendota; W. O. Ensign, Rutland; M. H. Everett, Lincoln, Neb.; C. E. Fogg, Wenona; W. H. Wilder, Chicago; O. B. Will, Peoria.

Visiting members of the profession: C. M. Coen, Mendota; E. P. Cook, Jr., Chicago; J. L. Remsburg, LaMoille.

The Sangamon County Medical Society met for permanent organization in the County Court Room, Odd Fellow Building, December 11, 1899. Geo. N. Kreider acted as Temporary President and Edw. P. Bartlett as Temporary Secretary. Forty-four members and visitors were present. The Committee on Constitution and By-Laws presented a report which was adopted as read. Acting under the new constitution the Society elected:

President, Geo. N. Kreider, Springfield.

Vice President, W. T. Moffett, Williamsville.

Secretary, E. P. Bartlett, Springfield.

Treasurer, Percy Taylor, Springfield.

Board of Directors, L. C. Taylor, E. E. Hagler, B. B. Griffith, all of Springfield.

The literary program followed, Typhoid fever being the topic. On the etiology and pathology W. O. Langdon said: No disease in recent years had received more attention and study, being a disease most prevalent and of most grave character, protracted nature and far reaching effects on the human system, causing diligent study by scientists to locate the lesions common to it, ascertain the cause and to produce a remedy. The cause had been found, but perfect antidote yet to come. An infectious disease with certain lesions of the intestinal canal, with Eberth's bacillus present, rose colored eruption not constant. Etiology under two heads: predisposing and exciting. Childhood and early adult life the predisposing cause. Statistics given showing this predisposition. No age exempt; sex not a material factor. New arrivals in infected districts prone to

disease. Station in life, nor occupation, not considered a predisposing cause. Infirm health, or intemperate habits considered as such. Autumn months and late summer season periods of most frequent prevalence; especially wet cold seasons following dry, hot summer. Exciting cause specific germ (shown under microscope), described as short, thick bacillus, lively movements, rounded ends, in one or both of which is to be seen round glistening body; bacilli usually in clusters in said disease. Baccilli grow outside of body on special culture medium at bodily and even lower temperature, and multiply rapidly. Tenacity of life wonderful; freezing and thawing several times seeming to add to their vigor. In ground live for years, and retain their virulence. Mode of infection, must be swallowed. Failed to find authentic case produced by other means. Water and milk most frequent vehicles of transmission. Touched upon natural resistance of individuals against the germs.

Pathology considered under two heads: 1st, Immediate or Specific, and, 2d, Remote or Toxic. 1st, Catarrhal condition of intestines, causing diarrhœa with thin pea soup discharges; specific lesions of lymphatic glands of lower bowel and ilium and hyperplasia of glands of Peyer. Perforation occurs in 11 per cent of cases, as shown by hospital reports. Hemorrhage frequent, due to separation of sloughs. Remote or toxic effects numerous, due to direct action of bacilli or to the toxine generated by them; enlargement of spleen; necrosis of same, and of liver, with degenerative changes in both, also of kidneys; catarrh of bladder; ulceration of larynx and lobar pneumonia. Nervous system suffers less than other parts of body. Delirium due to poisoned and impoverished condition of blood and lack of nourishment of brain.

S. E. Munson considered Widal's test. The specific reaction upon which this test depends in the characteristic phenomenon observed when a drop of blood serum or a drop of water containing a solution of dried blood from a typhoid patient is added to a bouillon culture containing a moderate number of typhoid bacilli. If a drop of such a mixture be placed between a slide and cover glass and examined the bacilli will be observed to lose their power of motion, and begin to gather together in small groups of two or more, gradually closing up the spaces as motion ceases, until clumping is perfected, or only a small portion remains freely motile. The reliability of this test depends upon the technique in the preparation of the blood serum, and the culture of typhoid baccilli to be used. That the culture should be young is absolutely necessary. It is well to examine a drop of the culture before the serum is added, to see that no clumping of the bacilli is present. A time limit has been adopted of one-half hour, in which the serum must positively produce the reaction. The balance of testimony goes to prove that the reaction is one of infection and not of immunity. The reaction is often not present until after the first week. It is present in about 95 per cent of cases. No reaction in non-typhoid, in 98 per cent of cases.

J. W. Kelly spoke on the differentiation of typhoid from malaria. The one positive means of differentiating malaria from typhoid is by the microscopical examination of the blood. If the blood is examined during the chill or one or two hours previous we may see by careful focusing a pale mulberry like body made up of from twelve to twenty segments massed about a clump of black pigment granules, and lying within the red blood corpuscles. In the same slide may be seen other bodies loosely arranged and falling apart and also small pale spherical bodies floating alone in the liquor sanguinis and also corpuscles on which may be seen minute pale spots exhibiting amoeboid movements. A few hours after the chill these are not visible, but within the corpuscle are seen actively moving amoeboid bodies of considerable size changing shape and sending out pseudopodia into the substance of the corpuscle.

This is the tertian parasite, and the quar-

tan is similar but smaller. Its amoeboid movements are slower, pigment granules darker and coarser, and lie quietly around the edge of the parasite. It reaches its complete development in from sixty to seventy hours. The parasite of æstivo-autumnal fever is still smaller, often less than one-half the size of the R. B. C. at its full growth. Only the early stages of its development represented by small hyaline bodies, often with one or two pigment granules are found in the peripheral circulation, and this very rarely, but blood drawn from the spleen shows it much more readily in this and the later stages of development. After the parasite has been present for some time it becomes larger of crescent shape and flagellation may develope and sporulation may take place. Methods of staining malarial parasites were then given.

C. M. Bowcock—Woodbridge treatment: Said he had treated thirty-five cases in all by this treatment; average duration of disease in cases, seen late in the disease, thirty-two days. Cases treated at St. John's Hospital, of longer duration than those treated in private practice, as most of hospital cases are of severe type. Average of all cases treated was twenty-two days. After diagnosis is made treatment is begun with Tablet No. 1-R/ Podophyllin Resin-1/950 gr. Hyd. Chlor. Mit.-Guaiacol Carbon. Menthol aa-grs. 1/16, Eucalyptol q s given every hour for forty-eight hours, if necessary, or until three or four evacuations of the bowels are produced each day. On third day Tablet No. 2, which is same as No. 1, with exception that it contains 3/16 grs. more guaiacol carbonate, and 1/16 gr. thymol. This tablet is given freely as possible throughout the disease, usually about every two hours, or as may be required to keep the bowels moving freely. In obstinate constipation saline cathartic required, in addition, as importance is attached to free evacuation of bowels throughout disease. Should ptyalism occur treatment stopped, and Pot. Chlorate used until controlled, then resume treatment. On fifth day Tablet No. 3 is begun. This is composed of Guaiacol gr. 3, Thymol gr. 1, Menthol gr. ss, Eucalyptol min. 5. Free drinking of distilled or sterilized water insisted upon. Cold sponging or bathing made use of when temperature rises to 102°, and in cases of hemorrhage the ice coil is made use of. Cited certain cases treated by this method.

W. T. Moffett, upon "Other Plans of Treatment," said that most authorities agree that there is no specific treatment for typhoid, notwithstanding the claim for Woodbridge and other methods. They also agree that there is no way to abort or shorten its duration, but also agree that there is an abortive form of the disease and that there are mild cases. One important method of treatment is that of the hygienic. This is not necessarily very different from that of other continued illnesses, and consists in absolute cleanliness of patient and all of his surroundings. He should be kept clean externally and internally. Soap and water excellent for external cleanliness; proper diet and intestinal antiseptics useful to attain cleanliness of the intestinal canal and if the blood becomes dirty from the absorption of the toxines or ptomaines and disease germs, a little flushing of the circulatory system with normal saline solution, may prove very beneficial, supplying the proper pabulum for the cells engaged in deadly combat with the enemy. It is well to look to the cleanliness of the mouth, the port of entry, establish quarantine over it, keeping the teeth, tongue and nasal cavity as nearly aseptic as possible. The linen, floor, walls, air, food, nurse and physician should all be clean. Mosquitoes, malaria infested, and flies, carriers of all manner of filth and germs, should be excluded. Sunlight and plenty of air admitted. Next important plan of treatment is that of dietary. Importance of supporting the strength of patient generally recognized. Administration of beef tea and broths discarded by some physicians as too good a culture medium for Eberth's bacillus. Eggs, gruel, custard, without raisins, softened

crackers, thickened milk, albumen water, malted milk, and in fact any of the soft foods which leave little or no residue, recommended as food. Believed it wise to vary the diet within the bounds of safety. Expectant plan of treatment spoken of; consisting of little or no medicine, except as symptoms arise. Said the symptoms usually arise and as expected, on schedule time.

Spoke of cold water treatment, and said that it was undoubtedly useful when properly carried out and in suitable cases. Mentioned Liebermaster's iodine treatment, Wunderlich's calomel treatment, Bartholow's carbolic acid and iodine treatment; use of quinine in large doses; opium in large doses; creasote; mineral acids, etc. Spoke of use of sulpho-carbolates, and recommended same in treatment of this disease. Recognized the importance of keeping the bowels well open throughout treatment. Special symptoms in special cases considered among them being intestinal perforation, and said that a lookout for this complication should be kept, and that not longer than twenty-four hours should be allowed to pass without resection of the bowel. Chances of recovery are in direct proportion to the promptness of surgical interference.

Joseph Brayshaw said that recognizing that Eberth's bacillus is the producing cause of typhoid fever the conclusion was forced upon us that the only means of prevention lay in the preventing of the bacillus from gaining an entrance to the intestinal canal, and to do this it was necessary to find the conveyances by which it enters. Observation had taught that these were contaminated water, milk and food. Pure water recognized as most important means of preventing disease. Spoke of duty of state and national governments in preventing pollution of water supply. Boiling or filtering water only safe means whereby private citizens can be sure of pure drinking water. Spoke of infected milk as means of disseminating the disease. Milk being a good culture medium for growth of typhoid germs, and readily takes up same from infected water used in cleaning the cans, or in diluting the milk. Thought that a rigid inspection of milk should be had by city or state inspectors. Food becomes infected through the medium of flies; washing vegetables in infected water, etc., and prevention here consists in cooking the food, and if raw vegetables are eaten using pure water in their washing.

Carl Black, of Jacksonville, Ill., by request spoke upon the transportation of typhoid fever patients. Several months ago he was notified by a physician in a neighboring town that a typhoid fever patient would be sent to Jacksonville, to the hospital for treatment. The next morning he was notified that the R. R. Co. had refused to transport the case, the distance being about ten miles. The Secretary of the State Board of Health was called up by telephone and asked if there was any rule bearing upon the case, and information was given that never before had such a question been brought to the notice of the Board, but that the R. R. could refuse transportation for cause, and he thought that the State Board of Health would support them in such refusal. Reference was made to the rules of State Board regarding the transportation of those dead of typhoid fever in support of this decision. The conditions had been reported to Morgan County Society, and as the question seemed new and interesting, correspondence was opened with prominent physicians, secretaries of state boards of health, and others asking opinions upon the right of a R. R. Co. to refuse transportation of a typhoid fever patient; asking if local boards of health, or the boards of health in other countries, or R. R. companies, had any rule prohiting such transportation, and if from the present state of knowledge of the transmission of typhoid fever the R. R. was justified in such denial of transportation. The replies establishes the fact that no regulations had been made by any of the state boards of health in regard to the transportation of persons sick with typhoid fever, but that it was recognized as a communicable disease and the

opinion generally expressed was that railroad companies were justifiable in refusing transportation to same, without extra and careful attention was given patients. One gentleman expressed the opinion that the disease had been spread greatly by the careless transportation of soldiers of the Spanish-American war, sick with same.

Lunch was then served and a pleasant hour spent in discussing the topic and viands.

Regular meetings on the 2d Monday of each month.

SMALLPOX IN ILLINOIS.

In view of the alarming prevalence of smallpox in certain parts of the State at the present time, and of the fact that the diagnosis of the disease has been disputed by physicians, the following exhaustive discussion of smallpox by a well recognized authority, will be read with interest:

An Open Letter to the State Board of Health of Illinois.

GENTLEMEN:—An epidemic disease is prevalent at this season in certain portions of this and of other States of the Union, which has awakened both among the laity and among men of the medical profession no little discussion and some controversy. The question of the nature of the malady has been debated alike by men of science, by editors of daily papers, and by the victims of the disorder who, it must be admitted, have a special interest in knowing the nature of the affection from which they have suffered. As I have had the opportunity of examining with care a number of the victims of this diease, both in this State and elsewhere, and last in an Illinois city, where I was given by the courtesy of the Mayor, an opportunity of observing a group of selected cases, I have ventured to address to your honorable body this open letter. It is my purpose, avoiding as far as may be the technical language of science, to set forth in simple terms the ascertained facts respecting the disease under consideration. I am entertaining the hope, however faint of realization, that some fair-minded editors of daily journals in the smaller towns of Illinois after reading these pages may be persuaded to consider the subject from a different view-point from that which they have heretofore assumed. If I might even make shift to gain the ear of a few sensible men and women, not either editors or physicians, who would listen without passion or prejudice to what is here set down, I should feel rewarded for my trouble. Since the members of your Board and hundreds of trained physicians throughout our State and country are well versed in all these problems, I have written not for you nor for them, but under cover of your name and theirs in the hope of helping others.

The conservation of the health of the people is concerned with problems which interest all alike and which cannot be ignored by a few without danger to all. Springfield and Chicago have as great and as vital an interest in the well-being of Aurora, Peoria, and Dixon as have these towns in the health of the people of Chicago and Springfield. What damages one is harmful for all. We are tied together by indissoluble bonds. Surely in this day, when the men of the North and of the South are forgetting their old differences, when our brothers from all parts of a common country are shedding their blood in defense of our flag, when the Nineteenth is slipping into the Twentieth century, and there is promise in the future of less narrow ideals, broader aims, and of wider sympathies, men can ill afford to look in any other than an unselfish light upon questions that interest our domestic health and wealth. It is, let us admit it with thankfulness, a portent of good when the worshippers in so many of our churches Sunday after Sunday repeat the ancient formula, that "it may please God to bless and keep all His people," not those in this small town or that, not those only in the village inhabited by a few. "To keep all the people," this is the keynote of the best work of the physicians concerned with the public health, alike in Cuba and Porto Rico, in Springfield, and in Chicago.

These sentences may sound like platitudes, common-places from the lips of a political speaker or a demagogue, but in point of fact they furnish a solid basis for the best legislation, whether in a common council or in a senate chamber. They are often left unformulated by the busy physician because they are assumed to be granted and to require no superfluous demonstration. Yet it is not unwise when men's passions are aroused and their material interests are threatened, to repeat the text and to emphasize its importance. The family physician need not express in words his solicitude for those to whom he ministers. His personal attendance at all hours of the day and night, his obvious anxiety to relieve his patients, his gentle touch and kindly manner prove better than words that his is not a selfish and heartless task. But it is different with the work allotted to Bodies like yours. No member of your honored Board is expected to make assurances to the public that your mission is one of beneficence and not of harm to the commonwealth. The very official character of your work places you to a degree at a disadvantage when your acts intimately concern the health and comfort and the property of those in behalf of whom it becomes your duty to interfere. For we know that pestilence destroys property; even the dread of pestilence is a source of disorder and wretchedness and waste.

It is a higher and more exacting task to prevent than to cure. But it is a task often

thankless and unrewarded; indeed, in the past it has been rewarded, as among the French-Canadians in the anti-vaccination riots of Montreal, with a rain of missles and with armed resistance to the law. The daughters of the Hebrew race in the days of their first king sang of Saul that he "had slain his thousands and David his ten thousands," but before another century ends the plaudits of the people will be based upon the nobler truth that while medicine and surgery have saved their thousands, the enforcement of public hygiene has saved its ten thousands.

An official authorized by you to inspect a portion of the State, and if possible to stamp out an epidemic threatening the health of its citizens and thus threatening the health of all the people, would be far more devilish than the Satan whom Milton depicted swooping down upon the happiness of Eden, if for an instant the health-officer could rejoice that the hour had struck in which he was to have the chance to close factories and schools, to quarantine men and women in their acustomed service and toil, to create disorder, and to set up barriers in the highways previously traversed by the many without let or hindrance. Rather should his visit be regarded as that of one coming like an angel of mercy to stand between the people and the pestilence, calling a halt upon its ravages and bringing order and comfort out of demoralization. Only a vast pity and profound sympathy move the trained expert who is summoned to a community suffering as have some of those lately visited by this epidemic.

The illogical and unreasoning speech and actions of those who set their faces against the regulations prescribed for the preservation of the public health, remind one of the action of the men of Devon and of Somerset described in the popular romance entitled "Lorna Doone," wherein it appears that the men of these two English counties, having set forth to exterminate the nest of the robber Doones, concluded by firing upon each other over the valley, instead of upon their actual enemies. In the discussion of the important questions at issue, how unwise to permit prejudice, passion, greed, or envy dictate to the judgment! These are the enemies of a judicial spirit, of the calmness with which reasonable men consider the troubles with which they are confronted, whether in war, in financial panics, in time of earthquake, or of pestilence. This is not the season for personal attack and carping criticism. Nor is it a time in which to hurl reproaches against those who might have done differently. Nor yet is it a day for upbraiding men with charges of ignorance and error. Rather is it a time for fraternal counsel and kindly suggestion. Many experienced physicians, wholly unaccustomed to the problems connected with this epidemic, have approached it from different points of view. They have been sufficiently wise to recognize that the symptoms in some points differed from their experience in other cases, and they have been cautious enough to make their judgment go with their findings. We should respect their prudence and admit the skill with which they have treated so many patients without grave results. Many of us could learn much from them. If they have not at first accepted the correct view, ours it is merely to ask seriously, whether there are not very strong reasons for careful reconsideration of the subject. The people of this State owe an immense debt to the best of their physicians. The latter are both well educated professionally and as a class exceedingly intelligent outside of their special vocation.

The great majority of these long since have accepted the statements here made respecting the facts of the prevalent epidemic. None need fear that even a large minority of them will not accept, and promptly accept, the truth when it is clearly presented to them.

Even supposing that the small number of those who refuse to accept the facts herein set forth are quite in the right, and that those who are in accord with the view here expressed are wholly in the wrong, even thus the man of common sense will pause and weigh the facts before taking his stand lest he be betrayed into remediless error. He would be a prudent engineer who in the day of a tempest listened to the warning cry even of a lunatic before taking his precious freight of living beings over a dangerous bridge!

Now, there is no controversy possible in the matter herein considered. A scientific man will not be betrayed into argument where there are not two sides to be argued. For all the days of argument and controversy in this question have long passed, and few have the time to go back half a century in order to fight over the old battles which were waged by our grandfathers of narrower observation and less extended experience. This is not a contribution to a vexed question. It is an appeal to men to recognize long-established fact. There are no novel phenomena to be noted in the prevalent epidemic. Expert physicians in England, Germany, France, and Austria have long since investigated and expounded every one of the symptoms that have in this day bred so much indecision and confusion in the minds of observers.

The prevalent epidemic is one of smallpox (variola). To refuse to accept this fact is to be guilty of egregious folly and to commit a dangerous blunder. Fortunately, the symptoms thus far exhibited have been those of modified or mitigated smallpox. The question of chief interest thus awakened concerns chiefly the differences to be established between unmitigated, unmodified smallpox (so-called, variola vera) and the mild or mitigated form from which so large a number of our people have lately suffered.

The history, symptoms, and career of unmodified smallpox have been so systematically and fully recorded in medical literature that it will be needless in these pages to recount them. They are equally accessible to physicians and to laymen in the pages of the standard treatises devoted to the subject. In this

connection it will be needful merely to outline in brief terms the symptoms of the mitigated form of the disease as it now epidemically prevails.

In well-marked cases the malady is usually ushered in by a chill, or by sensations of unusual faintness, or even by milder symptoms. Not often has a history been obtained of long preceding languor and depression. The chill, when such is experienced, is followed by a rise in temperature and the records of many of these patients show that 105 degrees F. are often reached. Nausea, either with vomiting or amounting to merely a distressed feeling in the region of the stomach, may be present or be not perceived. Pain in the back, (lumbar ache) is relatively frequent. With these symptoms may be experienced headache, dizziness, and faintness. Dr. William M. Welch (Phila. Med. Journ., Nov. 18, 1899), has presented an admirable picture of the symptoms noted in the prevalent epidemic, and he adds that in children there is apt to be a tendency to stupor and that convulsions often occur. In from two to three days there follows either a complete disappearance of all the symptoms of fever, or a very pronounced reduction of the temperature. In a few cases this practically closes the career of the disease. In the most, however, an eruption promptly appears, first, as a rule, on the exposed portions of the skin, such as the face, including the temples, and the scalp and the neck, and hands, which, with greater or less rapidity, at the most in two or three days, becomes distinctly generalized, that is, it spreads over the general surface, involving the head, trunk and limbs, including the mouth, the palms of the hands, and the soles of the feet. This eruption, usually completely developed in twelve hours, is declared by the production of minute, distinct, isolated, and firm elevations of the surface (papules), which when compressed between the thumb and finger produce the impression to the touch of small-sized shot imbedded within the skin. Between the second and third days, on the summit of these shot-like elevations, develop "watery heads" (vesicles), having imprisoned within each a clear fluid (serum, sero-pus), which becomes opaque or cloudy in the course of the third or fourth day. In some of these isolated elevations (papulo-vesicles) there may be evident a distinct puckering or infolding of the top of the head (umbilication). In many cases, however, this symptom is either wholly wanting or but faintly declared at a few points to be discovered only after careful search of the entire field affected with the rash.

The watery stage of these elevated semi-solid points is more or less rapidly exchanged for that where pus is formed in each, and the resulting pustules in well-marked cases are in the course of the fifth or sixth day rather symmetrically distributed over the surface of the regions already named, the largest and most distended occurring as a rule over the exposed parts, such as the face and the hands. At about this time a very distinctly defined narrow reddish blush forms as a margin (halo) about the elevated pock, which persists with greater or less conspicuousness until the crusts which form later are shed. The pustules are large, often as large as small beans; they may seem to "balloon" with matter; they are highly disfiguring.

Thus far in its career the disease corresponds to a degree with the usual course of unmodified smallpox, and in fact can rarely be mistaken for any other malady. It has been shown that even before reaching any one of the stages described, there may be a speedy relief of all symptoms and the patient may not only not have remained in bed, but may have actually undertaken the usual pursuits of his or her vocation in life. The most significant and startling contrast, however, between modified and unmodified smallpox is exhibited when the patient, after reaching the stage described, of complete development of pustules, suddenly ceases to betray any further significant symptoms of smallpox. The pustules dry rapidly into crusts, which are thrown off and leave the skin either somewhat stained at the points where the crusts formed or in nearly its normal condition. Some of the elevated points seem to recede; others with insignificant crusts atop each, when the latter are removed, resemble in appearance simple warts from which the head has been torn in the act of scratching. In yet others, semi-solid elevations (papules) of the skin remain, which do not betray the tendency to maturation (suppuration) displayed in other cases.

In the most of instances there is afterward an entire absence of the subsequent manifestations of unmodified smallpox, such as secondary fever, which in the severer forms of the disease is without question of septic origin. The grave consequences of the malady recognized in the nose, the mouth, the lungs, and the viscera, accompanied often by evidences of dangerous implication of the nervous centers, are all wanting. In rare cases, secondary fever has been recognized, but in a mild form.

It is claimed by some physicians that in the prevalent epidemic no scars are left at the sites of eruption, a statement which may be accepted as true for certain cases only. In others scarring of the face follows, but to a less severe degree than in uncomplicated smallpox. Certainly in this epidemic the eruptive symptoms are far more superficial than in unmodified smallpox where the deep-set pustules work such havoc to the deep integument (the corium).

The portraits presented by Dr. Welch of the form of mitigated smallpox which has been epidemic in several counties of Pennsylvania, furnish ample proof that the symptoms are those seen by our Illinois observers. The disease is one, and its manifestations are the same. In order to show that smallpox with precisely the same mild symptoms, and of exactly similar type is prevalent outside of both Illinois, Kentucky, Tennessee, and Pennsylvania, it is only necessary to read the reports made by physicians in

these other districts. By way of illustration I append the following extract from one of a series of letters sent me by correspondents in Kansas. The author of the following paragraphs is a physician of large experience and intelligence, filling a responsible office in his community. He not only gives a suggestive sketch of the epidemic as it has developed among his people, but also describes somewhat in detail the case of his own child watched by him with the anxiety of a father and with the care of a skillful practitioner. His letter describes a case of modified smallpox of the precise type now prevalent in Illinois and other States of the Union:

"My boy, nine years old, just recovering, has the following clinical history: Thursday noon, October 19th, he came home complaining of headache and dizziness, and did not want to go back to school after dinner. We kept him at home and he lay on the sofa most of the afternoon, but went out doors for about an hour. He had some fever, but was so slightly ill that I did not use the thermometer. Friday morning he rose and dressed and felt better, but about eleven o'clock had a chill which was followed by fever, temperature 103 degrees. I thought he was coming down with malarial fever, and so gave him quinine. The next morning his temperature was about 102 degrees, but he felt pretty fair until towards noon, when he complained that his feet were cold. His temperature at about nine P. M. was 105 1-5 degrees. We began bathing him with water of a temperature about 85 degrees, with a little alcohol added, and by 10:30 P. M. he had a temperature of about 103 degrees. He then went to sleep, resting quietly, calling for a drink two or three times during the night. On Friday he vomited several times, and I think once on Saturday. He did not complain of headache or backache except on Thursday. Sunday morning I discovered about half a dozen red macules on his face (left temple and cheek and right cheek), also several on his forearm and on his back. By night there were thirty or forty spots over his face, arms, and legs, and a few on his body over his chest and abdomen. Those that had appeared in the morning had increased slightly in size, had become papular, and showed a vesicle forming in their center. His temperature Sunday night was 101 degrees F. Monday morning new spots appeared, and more of the papules had become vesicles. His temperature was 99½ degrees and he was feeling quite easy. Monday night more spots appeared; temperature, 101½ degrees. Tuesday was about like Monday, but spots appeared larger, more raised, and with larger vesicles. By Thursday the vesicles first formed had reached as large a size as they ever attained. There was a slight red areola about them, but when the skin was compressed between the thumb and finger it was found that the inflammation was confined to the vesicles. The papules would at times feel a trifle "shotty" just before the vesicles formed, but when taken up between the thumb and finger they felt decidedly less so. About the fifth or sixth day after the eruption a dark spot appeared in the center of the vesicle, which gave it an umbilicated appearance. If, however, examined sidewise, it was seen to be not really umbilicated but only appeared to be so in consequence of the difference in color. This dark spot gradually got larger, and in about six days after the first appearance of the macule it began to turn white in color, then slightly yellow, and on the seventh day a scab began to form, which took about three to five days to drop off. If these vesicles are opened when they begin to turn white, that is, from a water-color to a milk-color, and the contents are squeezed out, there is left an umbilicated spot which scabs over and falls off quicker than those not opened. On the boy's face I opened those on the left side and left untouched those on the right side. This evening one-third of the scabs are off of the left side, and only one or two off on the right side. The last spots to appear were on the palms of his hands, and the soles of his feet."

Turning to the other cases of which between 200 and 250 have been seen by himself and his colleagues, this physician writes: "The two to four days (usually three) of fever are uniformly present. Most of the patients complain of some aching in the head, back, and limbs.

A few complain of severe aching. When the rash appears, there is uniformly a decline in the temperature and a feeling of relief. When the vesicles are not opened and pus forms, there is a slight increase of fever from about the seventh to the tenth day. If the vesicles are opened, and washed with some antiseptic lotion, little or no increase is noted. In none of the cases is there any deep or extended inflamation around the spots. They seem to be mostly in the epidermis or just below it, not in the derma. In a few cases there is umbilication, in about one to seven or twenty spots. Most of the spots are rounded throughout. The center of the spot holds the liquid and by pricking it all the fluid can be easily squeezed out. When the scab is formed, no pus is found under it if it is pulled off. The rash takes from two to five days to come out. It appears on the soft palate, one in eight to fifteen cases. The rash appears less frequently in the axilla and the groin."

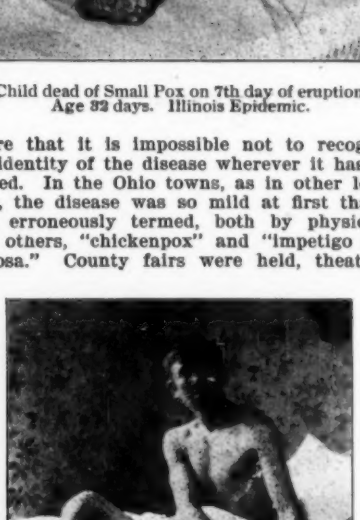
The appended cuts represent some photographs taken of the disease as it has existed in the States of Illinois and Kansas during the past two months, and suggest at all points the disease as it has occurred within the past few weeks in our own State.

The State of Ohio, according to the report made by the Secretary of its Board of Health, Dr. Probst, (*) in the course of the fourteen months ending with June, 1899, was visited by an epidemic of smallpox, in which occurred 1,882 cases, with fatal results to 30 of those stricken. The description given of the disease,

(*) Jour. of the Amer. Med. Ass'n, Dec. 23, 1899.

as it was observed by the physicians of the 61 cities and villages attacked, corresponds so closely with that of the cases observed in Pennsylvania, Illinois, Missouri, Kansas, and elsewhere that it is impossible not to recognize the identity of the disease wherever it has appeared. In the Ohio towns, as in other localities, the disease was so mild at first that it was erroneously termed, both by physicians and others, "chickenpox" and "impetigo contagiosa." County fairs were held, theatrical amusements attended, and public schools opened, with victims of the disease freely communicating with the unaffected. The vaccinated were mostly exempt, but a few of the protected suffered. The preliminary fever was slight, the eruption superficial, and the eruptive period brief and irregular of career; secondary fever was rare, and pitting was exceptional. A few malignant purpuric and hemorraghic cases were observed, some of these swelling the list of fatal attacks.

Child dead of Small Pox on 7th day of eruption. Age 32 days. Illinois Epidemic.



Epidemic of Mitigated Small Pox, Kansas Patient.

The patients affected with this type of mitigated smallpox in Missouri (more particularly in St. Louis), were affected in precisely the same manner as those observed elsewhere. The first cases seen were described as "chickenpox," but later the phyicians in attendance freely acknowledged their error.

Epidemic of Mitigated Small Pox, Kansas Patient.

The objections raised against considering these and yet milder types of the prevalent disease as smallpox in a modified form cannot be supported by fact or well-founded argument. They may, however, be briefly noticed.

First, the objection is urged that the watery heads (vesicles) seen in the affected patients are not puckered (umbilicated) as in the types of smallpox described in the text-books. To this it is responded that in every epidemic the puckering, or, better, fluting of the apex of the fluid-containing elevations of the skin may be wholly or in part wanting. At times the entire body-surface is practically covered with these small elevations of the outer skin filled with a cloudy fluid, each as distinctly puckered (cre-

nated) as if the center of the roof were tied down by a centrally inserted thread. At other times one searches in vain for this interesting feature of which it may be remarked in passing that it is not, as has been generally taught, seen only in smallpox. Other pustular diseases exhibit the same feature at times, though few to the same extent as variola. This symptom has been fairly well marked in a few patients seen by me in the present epidemic. Dr. Welch has had a similar experience. In the most cases, however, it has not been recognized.

A second objection is based not merely on the universal mildness of the symptoms in patients of the class described above, but on an almost entire absence of symptoms in the case of men and women who have been discovered on the streets pursuing their usual vocation. There is nothing novel and extraordinary in these histories. They are, however, sufficiently familiar to physicians who have had a large experience with smallpox. The lassitude and discomfort experienced by some sufferers is either ignored or absent in others, particularly in those of a vigorous constitution and of adult years. The eruptive symptoms in these cases may be limited to a few and even to two "pocks" on the body surface. The verdict of smallpox which has been properly made in such instances has often excited the derision of uninformed persons. But the published and unrecorded experience of groups of these phenomena is too well established to be ignored. Smallpox, indeed, may occur without producing any eruption whatever (variola sine variolis), the verification of this fact being best made in the pregnant woman who after a chill and fever without any skin-symptoms whatever, afterward brings into the world a new-born child covered with pustules of the confluent disease.

A third objection is presented on the ground of the condition of the patients affected with the disease now epidemic when examined with reference to cow-pox (vaccinia). It is alleged that in the present epidemic the vaccinated and the unvaccinated suffer alike. This is an important allegation which demands a word or two of explanation.

Vaccination is a method by which protection is secured against smallpox by introducing into the human system another and different disease. This disease, cow-pox, is now well-known to be different from the malady produced by the intentional production of smallpox in cows, though there is remarkable correspondence between the two, the differences proving that the two diseases, if not identical, are certainly allied. Vaccination is a very remarkable and satisfactory method of securing immunity from smallpox, but it is far from being a perfect method. No ingenuity of man has yet sufficed to create absolute safeguards against the manifold dangers to human life. The strongest iron steamship that can be constructed may be crushed like an egg-shell under the blow of one of the largest billows in an Atlantic tempest. In the gravest of smallpox epidemics, for example, in the form known as hemorrhagic variola ("black measles"), the vaccinated and unvaccinated suffer, not, it is true, in the same degree, but both suffer. I have seen a man die of confluent smallpox with two excellent scars from successful vaccination on the arm. Of the cases seen by me in the towns of the State of Illinois, four out of six of the patients have exhibited no signs of vaccination and have been unable to give any record of having been vaccinated.

Now, it is not true that on the whole the protected and unprotected suffer alike in the present crisis, but even when the disease is mitigated, an epidemic influence will explain the occurrence of smallpox in the vaccinated. It must be remembered that while the symptoms under consideration are extraordinarily mild when compared with the frightful scourge of the unmitigated disease, still the epidemic influence has been extensive and many patients even though not dying have suffered enormously. Some of them have been well-nigh covered with pustules, many have endured high fever. Fortunately, the physicians interested in the study of these cases find them of special interest and worthy of careful attention, but many of the victims of the prevailing epidemic have an aspect which proves in the highest degree loathsome and suggestive of horror to persons unfamiliar with the disease, who would probably, if occasion offered, flee affrighted from the presence of the sufferer. So, then, although the symptoms are unquestionably mitigated, still an epidemic actually prevails and one productive of serious, even if not always fatal, mischief. This epidemic influence is a potent factor. It is an influence exerted generally in any community attacked so that the susceptible suffer as they would not if a sporadic case, for example, of smallpox were by accident introduced among them. The French have a proverb which runs: "A night all cats are gray!" In an epidemic of smallpox the shades of difference between the protected and unprotected often appear to vanish. It is under these epidemic influences that men and women have several successive attacks of smallpox, one attack not furnishing immunity against another. These cases are rare, but they do occur and are sufficiently suggestive. I have seen a physician in a severe variolous epidemic suffer from an attack of ophthalmia whenever he was introduced into the chamber of a sufferer. At these times the unprotected, in whose persons at other seasons it is difficult to insure vaccination, receive the virus with relative ease and with excellent results. Hence if in a meager proportion the vaccinated suffer at the present time, it is not an argument against the prevalence of smallpox, it is rather a strong proof in favor of the prevalence of a smallpox epidemic, even if the symptoms displayed in the most of cases are mild or modified.

The same explanation is to be made in the cases where it is alleged vaccination has been successfully performed of patients convalescing from this modified smallpox. A few

instances of this exception to the rule have been adduced as triumphant demonstrations of the fact that no smallpox had previously existed. But such alleged proof is absolutely valueless and not in the slightest degree subversive of the established diagnosis. The facts are all explicable by the prevalence of the epidemic influence in smallpox, and point conclusively to the presence of such a disease and to none other. I have with qualified success vaccinated after modified variola; there is no reason why one or even a series of patients might not exhibit some vaccination-symptoms after suffering from smallpox in an epidemic form. It is to be remembered that a much severer test is made of the capacity of the patient when a virus is brought into actual contact with his body-fluids (as in vaccination) than when he is simply exposed through the medium of the atmosphere to the volatile contagion of a disease transmissible in that way. What physician would dare after the most successful vaccination of a patient at multiple points, to scarify the arm of that patient, and to attempt thus to introduce the virus of smallpox! He would be held criminally liable for the result, and that result in the time of a variolous epidemic, might be the transmission of smallpox to the person subjected to the experiment. The same is true of vaccination after modified variola when an epidemic is in progress. Brouardel has reported two consecutive attacks of smallpox in one patient, and in a blood relative of the same person six successful vaccinations at intervals of about six months. To sum up, then, in seasons of epidemic influence smallpox may occur several times in the same person; smallpox may occur in severe types in persons vaccinated; vaccinated persons may be revaccinated effectively at brief intervals; and vaccination may be followed by some results in persons convalescent from smallpox.

These facts being granted, it is nevertheless true that the immunity secured by vaccination is incalculably great and it may be well doubted if really typical results can be secured by the vaccination of persons convalescent from the disease now prevalent. It will be remembered that when referring to my vaccinations after modified variola, I did not say that *typical* results had been produced. An expert's description of the typical results of vaccination would probably differ widely from that of the inexperienced. Personally, I should view with great suspicion any report of typical results (scar foveation, areola, vaccinal fever, etc.) occurring after vaccination of the victims of the prevalent epidemic.

Vaccination after the onset of smallpox and when practiced in the early stages of that disease, is commonly effective, and if not protective in the way of aborting the disease, has a high value in modifying its severity. Even as recently as the current year, Kotowtschikoff (*) has discovered that in the suppurative stages of smallpox successes may be secured by vaccinating as often as twice in the day; and he has advocated this as a means of favorably influencing the course of the disease. But vaccination during the period of convalescence from smallpox, whether the latter be modified or unmodified, is typically successful only as a matter of very great rarity. The symptoms usually evoked by such attempts at vaccination are either the production of spurious and abortive pocks or what is more common the production of vesicles and pustules wholly unconnected with the vaccinal process. It is an established fact that after the ocurrence of smallpox the skin is left in a very sensitive morbid state. It is the frequent seat of pustules, abscesses, carbuncles, and other pus-containing symptoms of the surface, and these are specially apt to be provoked where the needle of the vaccinator has been employed.

Turning now to the diagnoses erroneously made of the disease under discussion, many of its victims have been reported to suffer from chickenpox (varicella). An error here can scarcely be made by a conscientious and careful observer. Let it be thoroughly understood at the outset that the patient affected with modified smallpox may have milder symptoms than another suffering from chickenpox. The differences between these wholly distinct affections are not exclusively those of severity. We have seen that a man with modified smallpox may exhibit perhaps but two pocks on his body, and even may be able to attend to his regular duties. While chickenpox is universally and justly recognized as a very much milder disease than smallpox, a child affected with a severe form of varicella may really be very uncomfortable for two days with the body extensively covered with the special symptoms of that disease. A man with a lion's cub for a pet would not dream of rating it below a fully grown German boar-hound because the cub was the smaller of the two beasts. He would know that in time the lion will be able to slay the big dog with a single blow of its powerful paw. This is quite suggestive of the difference between what might be called figuratively "baby-smallpox" and chickenpox. The former may extend and develop until it is competent to destroy human life at the rate of the most fearful scourges of the human race. But no degree of development or extension can ever convert chickenpox into anything more than a trivial affection.

Chickenpox (varicella) is ushered in, as a rule, by no pains in the loins, nor by nausea, vomiting, nor by a high range of bodily temperature for two or three days preceding the rash. At the most, there are but a few hours of mild fever in which the thermometer practically never rises as high as 105 degrees F., and the eruptive symptoms speedily appear, first as slightly reddened blotches scarcely larger than half a pea upon the surface, which rapidly become exceedingly superficial "watery heads" (vesicles) without the previous occurrence at the site of each, of elevated, firm, shot-like masses in the skin underlying each point. A feature of distinguishing importance in this

(*) Jour. of the Amer. Med. Ass'n, Dec. 23, 1899.

malady is the rapid occurrence of the eruption over the protected rather than as in smallpox over the unprotected surface of the body, and in successive crops, the patient at the moment of first examination, for example, exhibiting large numbers of blister-like "watery heads" (vesicles) over the back or on the chest, with a relatively smaller number on the face. At the height of the process a finger-nail can practically erase most of the evidences of trouble at any affected point. The velvety elevations are never puckered on the roof-wall of the single chamber containing the clear or opalescent fluid (serum); the crusts which form subsequently are thin and friable; the vesicles never develop into unmistakable pustules; at the worst, in from two to four days, the eruption and the disease are practically at an end. From first to last there is no suggestion of the career of even the most modified smallpox in the symptoms here enumerated. The mild fever persists during the eruptive stage, and at the outset of such a stage does not vanish or diminish, as in smallpox. Second attacks are rare; one attack confers no immunity from smallpox. Here the vaccinated and the unvaccinated suffer alike. Hence it follows that any patient exhibiting vesicles surmounting firm elevations of the surface of the skin, developing first on the exposed surfaces of the body, appearing on the third day after a high fever, with lumbar pain and nausea, and coinciding with marked fall of the febrile temperature, is almost certainly smitten with smallpox and not with chickenpox.

One might almost wish that the late Tilbury Fox had never introduced his "impetigo contagiosa" to the notice of the profession, seeing that in connection with smallpox more sins of diagnosis may be laid to its door than in the case of any other disease in the nomenclature. A few considerations, however, suffice to stamp its individuality. The "watery heads" (vesicles) which appear with relative suddenness in this disorder and which are not only superficial but which enlarge by lateral rather than by deep extension, are absolutely the result of infection with pus-organisms at every point where the symptoms develop. With this simple fact in view all errors of diagnosis may be avoided. Impetigo contagiosa is for the most part what may be termed a "finger-nail-filth" disease of early life, chiefly of children or of young adults. The finger-nails, charged with the effective elements of the disease, convey these sparsely, not plentifully, to accessible portions of the body, the face, (lips, nose, ears, cheeks) the hands, the knees, etc. The later "stuck-on," friable, readily removed, superficially attached crusts, never implanted on a firm base, are justly regarded as characteristic. In our clinical experience it is rare that more than a score of these individual symptoms may be counted in any single person. Our English brethren report cases in which the disease is widely generalized; I have rarely, very rarely, so seen it. When fever coexists, as reported, it is unquestionably the result of the irritation produced in the skin by the purulent germs. No patient displaying numerous pustules symmetrically developed and seated on a firm base, after the subsidence of high fever, is suffering from any form of impetigo.

The distinction between a patient suffering from a generalized eruption of the pustules of syphilis and another exhibiting the pustules of smallpox, is chiefly interesting as an academic study, inasmuch as not rarely, in the great St. Louis Hospital of Paris, and occasionally at my own clinic, patients are found standing in the line of applicants for relief, one showing smallpox pustules, and another next or near exhibiting the pustular symptoms of syphilis. Both, it may be observed, may have a slight rise in temperature.

But it is to be remembered that the generalized pustular rash of syphilis is really rare in America, seeing that the eruption finds amplest expression only in the persons of the extremely filthy, the victims of debauchery, drink, and poverty. It is almost never recognized among the well-to-do, the cleanly, the comfortably housed, and the warmly clad; however, often these latter may suffer from other symptoms of the disease. Of course, in any doubtful case, the history of syphilitic infection and the presence of other manifestations of the malady (mucous patches, alopecia, enlarged glands, traces of initial chancre) point to the truth. In syphilis the much slower evolution of the symptoms (time is a valuable aid to the physician in the diagnosis of smallpox), the obvious tendency of the pustules to cluster about the sides of the nose, about the cleft of the anus, about the ears, and near the line of the hairs at the brow, the peculiarly dirty-looking crusts which form at the apex of the semi-solid elevations of the surface, the failure of such distinct isolation of the individual pustules as occurs in all but confluent variola, are important diagnostic features. The patient with pustules of smallpox generally distributed over his body is usually found in bed. The syphilitic subject commonly makes shift to present himself at the out-patient department of a dispensary or hospital; in other words, the one readily, the other only with difficulty, tolerates his disease.

In view of the thoroughly characteristic features of even modified variola, it is almost superfluous to consider in detail the differences between its symptoms and those of eczema, acne, herpes, pemphigus, and the medicinal rashes. None of these is suddenly displayed after three days of fever and a rapid decline of temperature, in symmetrical development, attacking first the exposed surfaces of the body. The simple forms of herpes are generally seen clustered about the orifices of the body; the "shingles" variety (herpes zoster) is well-nigh invariably unilateral in disposition. Acne in pustular development affects the face, it is true, but is wholly unaccompanied by fever, and in its manifestations far outlasts all the symptoms of smallpox. The doubtful physician here, as so often when attempting to distin-

guish between similar affections, is aided by the passage of time. Pemphigus, in its manifold expressions, is not only a disorder, the skin-symptoms of which outlast, as a rule, the brief career of the eruptive features of smallpox, but it is one in which the blister-like elevations of the surface (blebs, bullae) are, as a rule, larger, and are filled with a fluid undergoing less rapidly than in smallpox the change to pure pus. With respect to the medicinal rashes, some of which, without question, are liable to be mistaken for the symptoms of smallpox, it is to be remembered that the withdrawal of the offending medicament is always followed by immediate amelioration of the symptoms in the skin. As in the other cases, the absence of fever and of a history of fever is to be considered in connection with the fact that very rarely indeed, if ever, do these rashes undergo changes consecutively from one type of eruption to another, firm elevations of the skin-surface, for example, changing to those exhibiting "watery heads" (vesicles) at the apex of the elevation; and these latter in turn changing to well-developed pustules. For the most part, the medicinal rashes develop in a single type, blushes, pustules, etc., appearing as such with promptness and not changing until the withdrawal of the efficient cause of the malady.

The severe and generally intolerable itching that distinguishes eczema need never be confounded with the excessive burning pain experienced by patients with a smallpox eruption over the face. A simple diagnostic difference will here suffice for the inexpert. There is almost never scratching of the affected part in smallpox, but that is a rare form of eczema in which at one time or another there is not only scratching, but also unmistakable evidence of scratching in the torn and abraded integument.

Returning to the prevalent epidemic of smallpox, it remains to explain, if possible, the mildness of the symptoms not in any one given case, but in such an extended series of cases, a mildness which has given rise to so much perplexity. I can think of no better illustration of this interesting fact than is furnished by another, even if vastly simpler, cutaneous affection, namely, the mosquito-bite.

Even the uneducated people of our country are thoroughly familiar with the results of an extensive attack upon the skin by the mosquitoes of densely populated and well cultivated regions of the United States. The mild results produced are, without any contention, due to the fact that for the most part the individuals attacked are the children of generations of men and women bitten by mosquitoes on this soil, who have transmitted their relative but not perfect immunity to their children.

Far different is it with those who come to our soil from countries where the mosquito has never feasted on the blood of their ancestors. Early in the Revolutionary War, and during their first summer in this country, the mercenary troops coming from Hesse-Darmstadt and Hesse-Cassel were so seriously attacked by mosquitoes on their march from Trenton, in New Jersey, that hundreds of the men were unable to distinguish objects through their swollen eyelids and were rendered wholly unfit for duty. Precisely the same symptoms are now recognized in mid-summer, especially in the City of New York, where the newly arrived immigrants from portions of Great Britain in which there are no mosquitoes, are exposed for the first time to the incursions of the marauders. The results are often astounding to those unacquainted with the secret of their origin. The exposed faces are often enormously swollen and look to be affected with an erysipelatous process. Large blisters (blebs) rise from the excoriated surfaces. The limbs and even the trunk, particularly of women and children exposed during the discomforts of sleep in a tropical temperature to which they are wholly unaccustomed, may be affected equally with the face.

So should it be and so increasingly should it be, in the case of epidemics which can be mitigated by the skill of man, such as yellow fever, where we now know uncleanliness plays such an essential role, and smallpox, where vaccination has worked such important changes. Science, in the long-run, comes to its own. Generations of our ancestors have been vaccinated and re-vaccinated, and even their unvaccinated children confess the influence of the immunity thus secured.

A modification of the potency of any germ may be produced by cultivation in special soils. We need to go no further than the bacteriological laboratories to find proof of this accepted fact. Fraenkel has demonstrated that an enduring decrease, even "a complete and irrecoverable loss of virulence," has been produced by artificial cultivation of most of the different species of pathogenic bacteria, and among these may be cited as conspicuous examples the germs of swine-erysipelas, of symptomatic anthrax, and of pneumonia.

Thus a minute organism descended from a death-dealing source may become in the culture-tubes of the experimenter as harmless as those found in an ordinary infusion of hay (bacillus subtilis). The mildness of the present smallpox epidemic can be accounted for rationally only on the basis of the very general practice during the last fifty years of vaccination of our people. Instead of being astounded at the result, we should greet it with a degree of satisfaction. It is the fruit of a century of progress. It is the dream of the exponent of State Medicine to modify in similar measures the several scourges of the human race.

War is as destructive as pestilence, and the one often sails in the wake of the other. "After the conflict, what disease?" is the query of the scientist. All our wars have left an heritage of some sort in unusual or unusually prevalent maladies. The battles of the Revolution were followed by such an extensive invasion of the itch that the public journals of that day are seen to be filled with advertisements of remedies for its relief. In the aftermath of the late Civil War, among other disorders, followed an unprecedented number of

cases of typhoid-malaria. Our armies in Cuba and Porto Rico have been lately exposed to smallpox at Holguin and other points. If, as seems probable, they brought back to us the contagion of the present epidemic, it should be noted that the carriers of these germs were not the natives themselves, but our own carefully vaccinated American soldiers. In these facts alone the scientist may find an explanation of the interesting features of the disease here discussed.

The names popularly given to the disease now epidemic in several States of the Union point more or less suggestively to its origin; for the terms "Spanish measles," "Cuban itch," and "Puerto Rico scratches" are frequently heard in the houses of the sufferers. The island of Porto Rico has, however, set a notable example to the smaller towns of this country in the way of stamping out the epidemic. Although in December of 1898 three thousand cases of smallpox were reported in sixteen of its municipalities, after the establishment of a government vaccine farm about eight hundred thousand natives were successfully vaccinated without rioting or disturbance, at a cost of about four cents for each individual; with the result that in less than one year (according to the report of Surgeon-Major Groff, by October, 1899) no case of smallpox was known to either the civil or military authorities anywhere in the island.

It seems scarcely necessary in this connection to call attention to the fact that even the mildest epidemic of smallpox may, under special circumstances, give rise to the most malignant cases of the disease. It has been already shown that the mitigation of the malady has been largely produced by the universal vaccination and re-vaccination of generations of the American people. Still it should not be forgotten that all the aggravating factors in the production of an epidemic are not yet wholly revealed to us. It has been supposed that certain climatic conditions have exerted some influence in one direction or the other. This, at least, is certain, that the introduction of even a single case of mitigated smallpox in a community which has been unvaccinated, has been again and again the fruitful source of one of the most fearful scourges that has ever afflicted the human family. Who, for example, would dare to introduce one of the victims of the present mild epidemic into such a community as that, for instance, furnished by the unvaccinated natives of Samoa! The consequences would certainly prove more formidable than if they had been subjected to a rain of the explosive missiles which have been forbidden lately by the Peace Conference at the Hague. It follows that only the most skilful and energetic measures should be taken to prevent the spread of the present epidemic, even in its mild form, as no living man can predict what type it may assume on the morrow or the following week.

The conclusions which one is justified in drawing from the facts here set forth are as old as the days of Jenner and as imperative as in the year when the clear-sighted von Hebra wrote his chapters on smallpox so lucidly and emphatically that today they present a true picture, as well of the virus as of its most efficient antidote. Vaccination and re-vaccination of everybody—child, adult, foreigner, native-born—there is no other safe reliance for the present and the future. By the methods known and found most effective in the care of the public health the epidemic must be stamped out and the disease at last completely eradicated. We may well doubt whether a smallpox epidemic, even of mild character, could prevail in any of the smaller communities in England and Germany, where vaccination is so generally and efficiently enforced. It is said that the modern tourist, if he could be transported to the streets of London in the last century would be immensely astonished, not so much by the dress of the people, by the aspect of the shops, and by the odd-looking vehicles on the streets, as by the extraordinary number of pock-marked faces on every hand.

At last the English people have learned their lesson and learned it well. They have had a bitter experience of the devastation which smallpox is capable of working among their kindred, whether in the hovel or in the palace. They have mourned the loss of a gracious sovereign smitten with the pestilence on the very throne of the kingdom. While we may not wish to follow them in all matters, they have set us a worthy example in the methods by which they have buttressed their bulwarks of immunity. The germs of this pestilence are powerless against the army of their humble villagers and peasantry, ranks upon ranks of whom bear on the arms of each no fewer than four and often as many as six and eight scars of effective vaccination. Vaccination should be the sole passport of entrance to the public schools, to the voters' booth, to the box of the juryman, and to every position of duty, privilege, or honor granted either by the State or by the Nation.

I am, with great respect, your obedient servant,
JAMES NEVINS HYDE.

Chicago, December 22, 1899.

Marriages, Deaths, Change of Address

MARRIAGES.

Dr. Newland Doud and Miss Minnie E. Pasco, Chicago, Nov. 23.

Dr. G. P. Marquis and Miss Emily Chamberlain, of Chicago, Dec. 6.

Dr. Chas. M. Baldwin and Miss Jean Bevan, of Chicago, Nov. 30.

Dr. H. L. Corbus and Miss Josephine Corbus, of Kankakee, Dec. 7.

Dr. D. L. Hess and Miss Ora M. Stults, Hettick, Dec. 19, 1899.

Dr. F. E. Hall and Miss Daisy Ayers, of Oak Park, Dec. 21, 1899.

DEATHS.

(Furnished by State Board of Health.)

Bonynge, F. G., Chicago, Dec. 26, 1899, age 50.
Bundy, S. H., Marion, Nov. 20, 1899, age 77.
Brown, W. P., Greenville, Nov. 16, 1899.
Bryant, Wm. W., Sycamore, Dec. 18, 1899, age 67.
Cantwell, A. W., Davenport, Ia., Nov. 22, 1899, age 58.
Hatch, H. Lee, Jacksonville, Nov. 24, 1899, age 55.
Hess, Adolphus, Sidney.
Hood, Emmet M., Mason City.
Jencks, H. L., Galena, Nov. 20, 1899.
Luke, E. J., Arthur.
McFall, Howard M., Mattoon, Nov. 10, 1899, age 39.
Maclin, W. T., DuQuoin, Dec. 6, 1899.
Whitmire, Z. Lincoln, Urbana, Dec. 3, 1899, age 34.

CHANGES OF ADDRESS.

(Furnished by State Board of Health)

CHANGES IN CHICAGO.

Barryte, Evan L., 315 Halsted st. to 354 W. North ave.
Beach, J. C., 327 State st. to 3007 Cottage Grove ave.
Butts, J. B., 374 Ogden ave. to 784 W. 12th st.
Conrad, Sarah A., 692 to 690 W. Adams st.
Cross, E. D., 3142 Prairie ave. to 3748 Albany ave.
Davis, Effa V., 516 W. Adams st. to 100 State st.
Dearlove, Mary A., 100 State st. to 972 W. Jackson Boul.
Dorchester, C. O., 328 Well st. to 261 LaSalle ave.
Eskridge, J. H., 4242 to 4166 Halsted st.
Goldnamer, W. W., 3454 Indiana ave. to 103 State st.
Goodwin, H. F., 59 S. Hermitage ave. to 214 Marshfield ave.
Hartung, C. J., Wabash ave. and 22d st. to 26th and Canal sts.
Hoelcher, J. H., 284 Belden ave. to 1669 Sheridan Road.
Hofman, F., 650 to 560 W. Chicago ave.
Irwin, E. A., Cook Co. Hospital to People's Institute Bldg.
Lockwood, Chas. D., Cook Co. Hospital to 126 State st.
Meloy, W. W., 149 S. Paulina st. to 734 W. Monroe st.
Messinger, Celestia, 100 State st. to 7 Central Music Hall.
Nutting, Emmogene, 1619 Diversey ave. to 168 39th st.
Smith, Jennie E., 665 to 666 Sedgwick st.
Topenka, Jennie T., 88 W. 18th st. to 2534 Wentworth ave.
Wellington, Gertrude G., 100 to 92 State st.

CHANGES FROM CHICAGO.

Bacon, Jos. B., to Macomb, Ill.
Blachly, Frank L., to Kalamazoo, Mich.
Evans, Chas. W., to Europe, temporarily.
Leenhouts, Abraham, to Holland, Mich.
Norden, Henry A., to Sturgeon Bay, Wis.
Sickles, E. A., to Dixon, Ill.
Solenberger, A. R., to Colorado Springs, Col.
Winn, Chas. S., to Brion, Ill.

CHANGES TO CHICAGO.

Kinney, T. J., to 535 N. Clark st.
Schmidt, F. W., Riverside to 13620 Indiana ave.
Wright, Emily, Rock Island to 853 Warren ave.

CHANGES FROM ILLINOIS.

Bennett, S. B., Fairview to California.
Dunn, Wm. L., Decatur to Asheville, N. C.
Fernald, W. J., Rantoul to Europe, temporarily.
Kellar, A. L., Sullivan to Azura, Cal.
May, Jesse W., Virden to ————
McCambridge, P. H., Steward to ————
Owens, D. W., Hersman to Colorado Springs, Col.

CHANGES TO ILLINOIS.

Arnold, Homus, to Braidwood.
Biddle, Edgar D., to Mt. Carmel.
Bush, J. H., Indianapolis, Ind., to Charleston.
Fowler, C. A., to Gelena.
Gates, L. A., Bridger, Mont., to Shannon.
Gillham, C. W., to Warsaw.
Gosselin, J., to L'Erable.
Hayhurst, Wm. C., to Flat Rock.
Hinman, Albert W., to Dundee.
Jenrick, John, St. Louis to Freeburg.
Mekemson, Robert, to Frederick.
Rigg, Virginia C., New York to Springfield.
Rutledge, J. A., to Elgin.
Trott, John R., to Virden.

CHANGES IN ILLINOIS.

Ackley, Newton B., Macomb to Fandon.
Burris, Wm. F., Sidney to Urbana.
Colbourne, J. A., Pontiac to Ransom.
Crawford, Geo. B., Hagerstown to Smithboro.
Davidson, T. W., Abingdon to Fairview.
Foreman, L. D., Waverly to Peoria.
Guss, Wm. C., Barry to Mattoon.
Hall, B. J., Fosterburg to East St. Louis.
Holke, J. H., Topeka to Athens.
Hart, S. F., Eddyville to Ottawa.
Hickman, C. W., Pleasant Plains to Springfield.
Justice, Wm. F., Summum to Littleton.
Kincheloe, E. W., Boody to Sidney.
Knox, W. I., White Hall to Manchester.
Lambert, Curtis A., Princeton to Pontiac.
Mayes, Jas. W., Dalton City to Sullivan.
Midgley, R. J., Wilton Center to Ritchie.
Ratts, Rinehart, Sidney to Longview.
Ryan, Wm. S., Swedonia to Viola.
Rideout, W. T., Atwood to Freeport.
Rice, E. E., Apple River to Allison.
Smith, Gould, Urbana to Homer.
Smith, H. H., Joliet to Harvey.
Smith, R. L., Pleasant Hill to Pawnee.
Smith, Cyrus H., Rockford to Farmington.
Shaw, Viola, Bradford to Pekin.
Stuttle, A. L., Glenarm to Pawnee.
Taylor, V. M., Chatham to Illiopolis.
Trigg, Joe M., Waggoner to Farmersville.
Zorger, Chas., Weldon to Urbana.